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Original Communications.

*CARCINOMA AND MYOMA UTERI; REMOVAL OF ONE OVARY AND PART OF THE SECOND FOR INFLAMMATION.**

BY E. E. MONTGOMERY, M.D.,

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GENTLEMEN—The specimens I show you to-day were removed from a woman twenty-three years of age who had been suffering for over a year from frequent attacks of bleeding, for which she had undergone at one time a curettement. Upon examination of this patient I found the uterus somewhat large, a sensation of a mass within the uterine cavity which I took to be a small fibroid growth. I dilated and curetted the uterus, and in so doing removed some small masses. The abdomen was opened, and a small fibroid enucleated from the uterine wall; but as there were other masses apparently within its cavity, I made an incision into it for the purpose of removing them. When the uterus was opened, however, I found the entire cavity studded with quite firm growths varying from the size of a pea to that of a hickory-nut. These growths were pedunculated, and evidently were from the endometrium and not from the muscular wall of the uterus. The character of the growths made me feel it was desirable the

*A clinical lecture delivered at the Jefferson Medical College Hospital.

entire uterus should be removed, which I proceeded to do. As this specimen is examined we find no sign of infiltration of the uterine wall, no indurated base, and yet there is very extensive inflammation of the endometrium. While the abdomen was opened a careful examination was made of the lymphatic glands of the pelvis; these revealed no sign of enlargement. The absence of any infiltration extending into the wall of the uterus, and the freedom from lymphatic involvement, led me to form a favorable prognosis. It is exceedingly sad to have to subject a woman of twenty-three years to so serious a sacrificial operation, but it was a case in which the decision had to be between the sacrifice of a part or the loss of life.

The next patient I show you is a woman twenty years of age. Italian nativity, her father and mother living and in good health at the ages of forty-seven and forty-two respectively. Two sisters and one brother are living and healthy. So far as the patient knows no member of her family has died from pulmonary or malignant disease. Her health has been good until a year ago, when she was treated in the out-patient department of this hospital for syphilis. Puberty occurred at the age of thirteen; periods were regular, normal in frequency and in the amount of discharge. She has had one child and two miscarriages, both of the latter at two and one-half months, the last one seven months since. Following the latter miscarriage she was confined to bed four weeks, and since has had severe pain in both ovarian regions. For the past two weeks the pain and tenderness have been much worse. Ever since her last confinement she has had a more or less profuse discharge. Upon vaginal examination we find a mass situated on either side of the uterus, which from the shape and situation I recognize as involving the tubes and ovaries. It is quite evident that this patient has had an infective disease following an abortion. The history of previous treatment for syphilis would render it evident that a disordered condition of the pelvic viscera had existed prior to the miscarriage, where the chronic inflammatory changes would render the soil most favorable for the development of infection. Syphilis is not an unusual cause for the occurrence of abortion, or even repeated abortions. The changes which take place in the uterus or in the fetal structures render the completion of gestation unlikely, so that abortion after abortion will occur in women who have been subjected to the infection of syphilis. Whether the disease was supplemented in this particular patient by the presence of gonorrheal virus I am unable to say, but we can readily understand that even were the patient properly cared for, the occurrence of an abortion would afford a favorable soil for the development of infection from the streptococcus, staphylococcus, or the bacilli coli communis. The infection is much more likely to occur, however, in a patient with the hygienic surroundings by which this patient has been environed. The infective process involves the uterus and passes through it to the deeper structures. It most frequently reaches the ovaries and tubes through the continuous mucous membrane lining the uterus and the tubes. It may, however, enter by the blood-vessels or the lymphatics, so that the disease which was formerly known as puerperal fever, and which we now recognize as infection, may present a great variety of manifestations according to the structures which have been invaded by its transmission through the tubes, blood-vessels, or lymphatics. The invasion of infection manifests itself by the lighting up of inflammatory trouble. The inflammation, however, is intended to be preservative rather than destructive, and there takes place the accumulation of a large number of leucocytes, round-cell infiltration, and pouring out of exudation on the part of nature in her attempt to shut off the infected area and thus establish a quarantine to preserve the general system from further involvement. The success of such an attempt necessarily depends upon the virulence of the infectious material, the avenue by which it enters the system, and finally, the powers of resistance on the part of the patient.

In our patient it is evident that nature has succeeded in establishing barriers, and the disease has been confined to the tubes and ovaries. The infective process is at an end; we are confronted with its results and are asked to relieve the victim from the handicap under which her sexual func-

tions must rest until the crippled condition can be overcome. Our examination of the patient does not enable us to positively assert that the disease is so extensive as to render certain the necessity for sacrificing both tubes and ovaries. It shall be our purpose to save as much as possible. With this object in view I first propose to dilate and curette the uterine cavity. I take this step in recognition of the fact that the uterus was the seat of the original infection; that an endometritis was thus developed which, without question, involves both the glands and the interstitial tissue. The involvement of the glands is evident from the profuse leucorrheal discharge from which this patient suffers—a discharge which is largely made up of the secretions from the glands, together with the exfoliated epithelium mixed with blood and pus corpuscles. Under such circumstances the first important consideration is to secure proper drainage. To accomplish that we thoroughly stretch the cervix with graduated bougies or dilators. In the performance of the dilatation, however, we exercise every precaution to avoid the introduction of further infection and thoroughly cleanse the vagina by scrubbing it, using for this purpose a solution of tincture of green soap one ounce, two drachms of creolin to the pint of hot water, wrapping the finger with sterile gauze, and having this solution poured into the vagina as we thoroughly scrub it in order to cleanse its crypts and folds from infectious material. The solution is then removed by washing the vagina with sterile water and finally with alcohol. A speculum is introduced, and the vaginal walls wiped dry with sterile gauze, after which the cervix is seized and cleansed as thoroughly as possible with sterile gauze. The cervix, held with double tenacula, is dilated by the introduction of bougies. A bougie as large as the calibre of the cervix will permit is first introduced, and followed successively by larger ones carefully introduced, keeping in mind the direction of the canal which the previous bimanual examination has disclosed. Traction is made upon the cervix so that the canal if flexed will be straightened and the possibility of any undue pressure upon any point of the canal thus avoided.

It is well to remember that in patients in whom the uterus is soft and friable from recent inflammation, or where an acute flexion of the uterus exists, the instruments must be passed with the greatest care to avoid perforation of the uterine wall, a perforation which could readily permit the introduction of infection to the peritoneal cavity, and which has resulted in the carrying or dragging into the uterus of omentum and intestine. We can always determine whether a perforation has occurred by the distance the bougie passes toward the external os; for instance, if perforation has occurred we will find that the bougie does not meet with any resistance, but will pass into the uterus to an indefinite length. Where the bougie passes farther than we deem is compatible with the previously determined length of the uterus, a careful examination should again be made, as one of two things exists: either a perforation has occurred, or the operator has been mistaken in eliciting the history of the case and introduced a bougie into a uterus that is occupied by a fetus. The graduated bougies are introduced until the cervix is distended to a point at which further dilatation would result in laceration. A sharp curette is then introduced and the entire wall of the uterus gone over, paying particular attention to the fundus and lateral angles of the uterine body. The curettement is best done with an instrument whose handle is perforated, through which a stream of water can be thrown during the performance of the operation. This may be simply sterile water, but preferably normal salt solution or a two-per-cent solution of bicarbonate of soda, or it may still further be medicated by the addition of ten drops of formalin to the quart of normal salt solution or the two-per-cent bicarbonate of soda.

The curettement having been completed, the cavity is dried and swabbed with a saturated solution of iodoform in ether. The ether is quickly evaporated and leaves a deposit of the iodoform upon the surface. If it is desirable to make a more profound effect in the way either of a caustic or disinfectant action, the uterus after being dried may be swabbed with a saturated solution of iodine crystals in 95-per-cent carbolic acid. Ordinarily after such treatment the uterus is left to drain. In pa-

tients, however, in whom the curettement is followed by profuse bleeding, or in whom there is reason to believe that the cavity of the uterus is in a state of infection, it is better to pack the cavity with iodoform gauze. The iodoform gauze by plugging the uterine cavity decreases the tendency to bleeding, it promotes the throwing out of inflammatory exudate, which glues up the avenues for the admission of infection, and by its presence as a foreign body stimulates uterine contraction, promotes the absorption of exudation, and still further tends to close the avenues for the entrance of infection.

Our next step is to open the abdomen. The patient has had a two-days' preparation for this, during which time the bowels have been thoroughly evacuated by administration of saline purgatives and irrigation of the rectum. The vulva and field of operation have been thoroughly scrubbed and shaven, and an antiseptic pad has been applied to the abodmen before she was brought to the operating table. As a final preparation after anesthesia, we again scrub the abdomen with soap and hot water until the skin is well reddened. The soap is removed with a gauze pad saturated with alcohol. The surfaces thus cleansed are surrounded by sterile sheets and towels and we proceed with the operation. The abdomen is opened in the median line to a sufficient extent to permit the ready inspection of the pelvis, the patient occupying the Trendelenburg posture. The intestines are pushed back and walled off with sterile gauze. We find both ovaries and tubes fixed by firm and extensive adhesions. The ovary and the end of the encapsulated tube demonstrate the effort nature has made to close the avenue through which the infection entered the peritoneal cavity. The left ovary is considerably enlarged, but the tube, while encapsulated and its end closed, is not enlarged and contains no accumulation.

Before proceeding to the removal of the left ovary, although it is large, I carefully examine the right, as I do not desire to castrate this woman if it can be avoided. Raising up the right ovary, however, there is but little choice so far as the size and appearance are concerned. The ovary and tube on the right side are larger even than those on the left, and the structure of the ovary apparently pretty well destroyed; so we proceed to its removal. This is done by raising up the ovary and tube, packing gauze beneath it, and then applying an angiotribe upon the broad ligament, which thoroughly crushes it. Through the base of this crushed tissue we introduce a catgut ligature, tying first one and then the other half of the pedicle, after which the mass external to the ligature is removed. Had we found the tube extensively involved and the infection extending, as it frequently does, into the fundus of the uterus, containing inflammatory nodules or a cheesy degeneration, we would have crushed the broad ligament beneath the tube without including the latter, applied the ligature, and then dissected out the tube, closing the peritoneal surfaces and compressing bleeding vessels by means of the continuous catgut ligature. The ligature serves the purpose of a ligature as well as suture by passing a needle under the loop in such a way as to lock each turn of the suture. It is very important in this procedure that these vessels should be firmly and certainly secured, otherwise we may have an internal hemorrhage which may imperil the convalescence, if not cause the death, of our patient.

The left ovary is also diseased. As I raise it you notice the extensive adhesions over its surface, that the end of the tube has been glued to it, indicating that the infection has traveled through the tube and has caused the extravasation of plastic material which has glued it to the ovary. These adhesions broken up, we find the tube is opened. We now proceed to the removal of the diseased portion of the ovary, which leaves about one-half the ovary remaining. The raw surface is brought together by a continuous catgut suture in order to leave no denuded portion within the peritoneal cavity, and to control bleeding vessels. This procedure completed, we drop the ovary and then inspect carefully the parts, while the wound is held open by a retractor and the intestines withdrawn and retained by gauze packing.

Oftentimes the parts while upon the stretch will not bleed, but hemorrhage occurs when the vessels are relaxed by permitting the parts to resume their normal

position. In all operations the parts should be inspected while at rest, and thus insure control of bleeding. Even though bleeding is insufficient to endanger the life of the patient, it is evident that the accumulation of blood in a pelvis which contains a certain amount of infectious material, and where it lies in close contact with intestines so injured as to favor the rapid transmission through their walls of infectious germs, would prove dangerous. The tunica albuginea of this ovary was exceedingly dense, almost as firm as sole leather. In the one side even the portion which still remains shows the evidence of inflammation, but the removal of the greater portion of the diseased structure with the changes that must result insures a process of metabolism which will render the remaining portion of the ovary more healthy. In further toilet of such a case I would a few years ago have flushed this abdomen thoroughly with normal salt solution. We will, however, in this case simply dry it with sterile gauze, with the belief that the subsequent condition will be more favorable for rapid convalescence than if we had subjected it to irrigation and thus influenced the epithelium of the entire peritoneum, and possibly decreased its ability to take care of any secretion which might follow.

Before closing the wound we are very careful to make sure that all the gauze pads we have used have been removed. This is a very important part of the procedure; in fact, it is unwise to introduce loose pads into the peritoneal cavity without having the end of each one attached to a pair of forceps, by which we can make sure that all have been removed. I am in the habit of pushing up and holding back the intestines with one or two long pieces of gauze, the ends of which are fastened by a hemostat outside the abdomen. Any loose pieces of gauze which are subsequently placed in the pelvis are within sight and can be readily removed before the large pieces of gauze are withdrawn. Even with such a precaution, however, it is important that the nurse should know absolutely the number of gauze pads that are being used, and these should be accounted for before the wound is closed. It is astonishing how a piece of gauze may be carried up through the peristaltic action of the intestines to the upper part of the abdomen, and be so covered or rolled up with the omentum as to be overlooked by a careful operator.

The wound is now closed with continuous and interrupted silkworm-gut sutures. At one end of the wound the continuous suture is introduced through aponeurosis, muscle wall, and peritoneum, and brought out through the peritoneum only. It thus closes the peritoneum until the lower angle is reached, where it is brought out above the aponeurosis. The silkworm-gut sutures are then made to include everything above the peritoneum, and after a requisite number are passed the aponeurosis is closed by the continuous suture. This suture is tied at the upper angle of the wound, when we have a double row of sutures with a single knot. The silkworm-gut sutures are now tied, bringing in apposition the surfaces and preventing the accumulation of fluid between the layers. It is important that these sutures should not be drawn too tight, as otherwise they produce strangulation of the intervening tissue and increase the danger of the formation of a stitch abscess. Where a wound is closed with such a method of suturing and union results without infection, the probability of subsequent hernia is exceedingly slight; indeed, the wound should be as strong as any other portion of the abdominal wall. The silkworm-gut sutures left long serve to drain any fluid away from the wound into the gauze, and also aid in their removal. The wound should be cleansed with alcohol and dressed with sterile gauze and cotton, which is held in place by pieces of plaster with tapes attached, the latter tied over the dressing, and finally, a many-tailed bandage.

A CASE OF BROMOFORM POISONING.

By Henry K. Dillard, Jr., M.D.,
Resident Physician at the Children's Hospital of Philadelphia.

In view of the infrequency of reports of cases of bromoform poisoning, the following notes of a case seen recently in the Children's Hospital may be of interest:

M. B., aged sixteen months, was brought to the receiving ward of the Chil-

dren's Hospital November 13, 1902, at 9.45 P.M. The child had been suffering from a bad cold, and cough, for the previous two days; and at seven o'clock on the evening of the date of admission four drops of bromoform was administered to her for the purpose of allaying her cough. No relief was afforded by this first dose. At nine o'clock a second dose of four drops (?) was given, which the child vomited. A few minutes later her head suddenly fell forward, the eyes became hazy, she gasped for breath, her skin became cold, her body limp, and complete unconsciousness followed.

On her admission to the hospital about a half-hour later, attention was at once directed to her pupils, which were contracted to the size of pin-points, and did not react to light. There was an odor of bromoform on the breath, her face was cyanosed, her lips partly open, her skin cold and clammy, her breath sounds irregular and shallow. Her pulse was 80 to the minute, weak and irregular. Her heart sounds were distant and feeble. No convulsions were noticed; her muscles were relaxed.

The following treatment was pursued: Strychnine and atropine were administered hypodermically; brandy and aromatic spirits of ammonia were dropped into the mouth. Lavage of the stomach was performed, and a soap-and-water enema was given. A cold bath was followed by a thorough rubbing of the body and limbs. Artificial respiration was resorted to.

The condition of unconsciousness continued from 9.45 P.M. to 1.15 A.M., at which time the child suddenly came out of the unconsciousness, moved her arms and legs, cried lustily, and appeared to be fully recovered. Under the influence of the atropine the pupils dilated to their normal size. At the time the child recovered consciousness her temperature was 99.4°, her respirations 48, and her pulse 140. The child slept, at intervals, through the night, but the following morning again went into a condition of unconsciousness, from which she was, however, easily aroused.

She was discharged fifteen hours after admission to the hospital, apparently in good health.

The points of especial interest in this case are:

1. The rapidity with which unconsciousness came on, and the corresponding rapidity with which the child returned to consciousness, after a period of over four hours.

2. The pin-point pupils, which might have led to an incorrect diagnosis of opium poisoning.

3. The bromoform administered to the child was not the last in the bottle, and therefore concentrated, as six fluidrachms remained in the ounce bottle after the second dose.

I am indebted to Dr. Alfred Hand, Jr., in whose service I saw the case, for permission to report it.

MEDICINAL CHEMICALS.

By Virgil Coblentz, Ph.D.,
Professor of Chemistry in College of Pharmacy of the City of New York.

Since the last revision of the U. S. Pharmacopœia, numerous complaints have been made by both manufacturers and retailers that the restrictions as to limits of purity of the chemicals were unnecessarily severe and exacting. On the other hand, the reports of analysts show that the quality of many of the chemicals as found in the market is not only below the official standards of purity, but some are adulterated or entirely substituted. The more recent pharmacopœial revisions of Europe and the United States have all shown a strong tendency toward greater preciseness and stringency in purity requirements, advancing along in line with the progress in manufacturing processes.

When we consider the vast improvements that have been made during the last decade in the line of electrolytic and other chemical processes, whereby products of a high degree of purity are readily attainable at a decrease in cost of production, why do we tolerate inferior medicinal chemicals? Inability to obtain a reasonable price for goods of standard quality necessitates the manufacturer reducing, wherever possible, his manipulations to the very lowest limit in order to supply a demand for a cheaper product. No one can expect a manufacturer to furnish med-

icinal chemicals which are absolutely pure at the prevailing market prices, especially so since it is immaterial to the physician whether a small percentage of innocuous impurities is present or not. It certainly does not concern the prescriber as to whether the potassium salt he desires is free from all traces of sodium or not, or whether his potassium bromide contains chlorides or sulphates, as long as the necessary ninety-seven per cent of the pure salt is present. On the other hand, shall a sample of potassium iodide containing nine per cent of chlorides, when the official standard permits only one-half per cent, be allowed to pass unchallenged, or another containing an *excess* of alkali carbonate, or shall we accept a sodium phosphate that contains one-fortieth of a grain of arsenous oxide to the ounce?

While it must be conceded that *traces* of arsenic, copper, lead, or zinc are to be found in most foods and chemicals, yet we must make a sharp discrimination between preventive and non-preventive contamination as to limits permissible. The British Pharmacopœia demands practically the total absence of all such metallic contaminations; the last (1890) revision of the U. S. P. was very generous in this respect, so much so that the limitations need a very careful revision. In the opinion of the writer not more than one part of any of these metals in 100,000 of the chemical should be permitted; this limit must be insisted upon for such substances as are usually administered in large doses extending over considerable periods of time, as, for example, sodium phosphate, the alkali acetates, hypophosphites, sodium sulphate, bismuth salts, etc. The presence of some of these metallic impurities, more particularly arsenic, may be traced back directly or indirectly to the employment of impure sulphuric acid made from arsenical pyrites, these contaminations being then carried from one product to another.

Dr. Hehner (*Jour. Soc. Chem. Industry*, 1901, 188) has estimated that no less than 1800 tons of arsenous acid are distributed in the one million tons of sulphuric acid annually produced in England. While these conditions do not by any means represent those prevailing in this country, still the extent to which arsenical pyrites is employed in the manufacture of sulphuric acid is shown by the presence of this poison in many of our chemicals. While this may be expected in what is known as the technical or commercial article, yet we must insist upon its absence from the "medicinally pure" salt or that which is sold as such. Examination of original packages of the various hypophosphites, sodium phosphate, and glycerin showed the presence of from 1/150 to 1/40 of a grain of arsenous acid in each ounce in some, while others contained but traces. Different lots of the same manufacturer's product varied in this respect. Some of these chemicals were labeled "chemically pure," others "pure," while still others were without any qualification whatever as to purity. The "commercial" sodium phosphate is highly contaminated with arsenic; now what is to prevent an ignorant retailer from dispensing *this* salt, since it appears to be the custom to label the article without purity qualification?

It is to this careless habit of indiscriminately labeling chemicals, more particularly the medicinal ones, that I desire to direct attention. Aside from those just mentioned, there are others which fail to comply with the official standards of the U. S. Pharmacopœia, and yet are tacitly accepted in the market as such. The terms "Pure," "C. P.," "Purified," etc., as at present employed, possess but little or no significance considering the varied interpretations which are placed upon such qualifications by the chemist, toxicologist, photographer, physician, or manufacturer.

Absolute purity and freedom from all traces of foreign substances is with most chemicals a condition very difficult, if not in some instances impossible, to attain. This condition is not desired; it is the absence of certain specified contaminations which interferes with the use of these chemicals for specific purposes, hence these vague terms should be either replaced by others or be sufficiently qualified to indicate accurately the *degree* of purity. The tendency of some of our dealers and manufacturers to ignore the use of the term "U. S. P.," or the official title which leads one to assume the same, is to be deplored, for it fosters a loose practice among the retailers and dispensers, and evades legal responsibilities.

The cases of gross adulteration or sub-

stitution which usually occur may be invariably traced either to irresponsible dealers or unprincipled dispensers. I refer to such frequent occurrences as the substitution of sodium bicarbonate for powdered borax, the admixture of powdered borax with boric acid, mixing of powdered ammonia alum with ammonium chloride or potassium chlorate (powdered), the adulteration of cream of tartar, the substitution of acetanilid alone or mixed with sodium bicarbonate for phenacetine or sulphonal, the sale of mixtures of zinc oxide or starch colored with ferric oxide for aristol, or samples of this latter, which are excessively alkaline, adulterated with inert powders, and so on. Such instances deserve the attention of our boards of health and pharmacy boards, and relentless prosecution is the only remedy.

The manufacturers are able to furnish chemicals of any degree of purity that may be desired, and are ever ready to do so if allowed a fair business margin, but it is the unjust nature of the competition between the responsible and irresponsible, that leads to the curtailment of processes and failure to properly purify many of our medicinal chemicals. It remains for the profession to insist on being furnished with products which conform to the purity requirements of the U. S. Pharmacopœia, assisted by the proper enforcement of a pure food and drug law.

JAESCHE-ARLT OPERATION FOR ORGANIC ENTROPION OR TRICHIASIS.

By A. S. U. Anderson, M.D.,
Sapulpa, I. T.

The first incision in this old operation, which splits the margin of the lid "into two portions, the anterior containing the integuments, eyelashes and their bulbs, etc., and the posterior the cartilage and the efferent ducts of the Meibomian glands," is an unphilosophical and harmful step. The entropion, the trichiasis, is due to shortening on the conjunctival side of the tarsus. The free border of this cartilage is the fulcrum around which the shrinking conjunctiva pulls the lid margin with its ciliæ. This incision made inside the row of lashes and "left to heal by granulation" simply adds to the cicatricial tissue on the conjunctival side of the lid, and while it may seem to do good at the time of the operation, its ultimate effect will be harmful as long as the law stands that "scar tissue tends to contract."

There is a limit also to the amount of integument that should be removed in the crescent between the second and third incisions of the operation. Nothing but redundant integument should be removed, and it should be laid down as an axiom that tension of the skin must not be relied on to maintain eversion of the lid margin. The lid margin may be everted and held in eversion without the removal of any portion of the skin.

In the study of the mechanics of this distortion of the lid, and the means proper for its relief, too little attention has been given to the part played by the tarsal cartilage. It is to the inner surface of this cartilage that the conjunctival and subconjunctival tissues are closely attached. There is no loose areolar tissue between conjunctiva and cartilage such as lies between the skin and the cartilage. This close attachment, made more intimate by long inflammation, gives the power to the shrinking conjunctiva to increase the concavity of the inner tarsal surface, as well as to draw the row of lashes from their normal position on the outer side of the free border of the tarsus to the inner side of that border, using this free border as the fulcrum around which the force of the contraction is made effective.

Now it would seem that in the correcting operation this close attachment of the conjunctiva to the tarsal cartilage should be dealt with. We groove the cartilage on its outer surface to overcome its extreme incurvation, trim the orbicularis muscle on some unexplained ground, cut away a "portion of the tarsus including the conjunctiva" without reason; but these subtarsal attachments that give effect to the conjunctival shrinking for evil on the cartilage and lid margin we have never attacked.

The following operation is suggested as a substitute for the Jaesche-Arlt method, and for conciseness is described as done on the upper lid, and for entropion or trichiasis of the entire lid margin: Make an incision on the outer surface of the lid

from end to end of the tarsus along its straight or lower border. Deepen this incision so as to separate the lid margin carrying the roots of the lashes from the lower border of the tarsus. Seize this free tarsal border with forceps, and with spud or director or scalpel separate the under surface of the cartilage throughout its extent from the subconjunctival tissues, taking care not to make an opening through the conjunctiva at any point.

If there be redundant integument, remove a crescent of sufficient width by making a second incision curving upward from the extremities of the first incision, like the third incision of the Arlt operation. In the greater proportion of cases there will be no need to remove any skin, but the upper border of the incision wound will simply need to be pushed up so as to expose the upper border of the tarsus in inserting the sutures.

The aim in suturing is not only to approximate the wound edges, but to draw the lower border of the incision up on the outer surface of the tarsus and to hold it there. To do this, after the needle is passed through the lower cutaneous border it is to be passed through a fold of tissue very close to the upper border of the tarsus, brought out, and finally passed through the upper cutaneous border of the incision. Three to five sutures so placed will secure the adhesion of the lower wound border near the upper tarsal border, and the reposition of the ciliæ in their normal position with reference to the cartilage.

The dissection beneath the tarsus renders this certain and without tension. It also allows the shifting of the results of conjunctival shrinkage from the lid margin to the retrotarsal folds. In this situation the shrinkage can do no harm unless the contraction is excessive.

In this operation use is made of the tarsus as a fixed support for the ciliæ, and it is not a matter of balancing the abnormal pull on the conjunctival side of the edge of the tarsus by an equal pull on the cutaneous side.

I have been led to employ this operation on some old cases with lids so frequently and freely operated on by the Arlt operation as to make it impossible to perfectly cover the eyeballs in closing the lids except by a strained effort; and yet the trichiasis was unrelieved or had returned. Such cases convinced me that it is frequently and perhaps generally a mistake to remove the crescentic piece of integument from the lid, and certainly a mistake to make the skin a taut membrane to antagonize the contraction in the conjunctiva. If then this contraction could not be antagonized, could it be attacked directly? The operation above described is the answer.

It should, however, be kept in mind by operators on such cases that the inflammation causing the lid distortion should not be neglected after the trichiasis is relieved. The operation will not cure a granular condition of the conjunctiva.

TREATMENT OF PROSTATIC HYPERTROPHY.

By Edward Martin, M.D.,
Professor of Clinical Surgery, University of Pennsylvania.

(*Concluded from p. 163.*)

There are some complications of urinary obstruction and vesical infection incident to enlarged prostate so common that their treatment should be well understood. These are Acute Retention, Epididymitis, and Recurring Stone Formation.

Acute Retention.—Either vascular engorgement or muscular spasm, usually both these factors combined, may convert a prostatic enlargement which has been acting merely as an obstructing agent to one which is completely blocking, causing retention of urine. The emergency in these circumstances must be promptly met, nor is it wise to waste time in palliative measures, since as the result of vesical distention practically irremediable lesions may develop. It is nearly always possible to pass an instrument into the bladder, and this without much difficulty, provided the proper instrument and procedure be adopted.

The anterior urethra should first be thoroughly flushed with an antiseptic solution. An instillator is then carried within the grip of the compressor urethræ muscle, and the membranous and prostatic urethra are rendered insensitive by the injection of 20 drops of a four-per-cent solution of eucaine. A soft-rubber catheter

with an elbowed tip is then introduced. Should this fail of passage an attempt should be made to drain the bladder with a rat-tailed woven catheter. This failing, an attempt is made to introduce the woven double-elbowed catheter. This also failing, a soft-rubber catheter, 12 to 14 French, is slipped on one of the soft iron wire stylets with which the woven English catheters are provided, or better than this on a whalebone mandrin 18 inches long, caliber 6 to 9 F. The extreme end of this stylet stops one inch short of the eye of the catheter. It gives the soft-rubber catheter a rigid shaft, but a perfectly flexible end. By bending the wire a long curve is given which corresponds in general with that of the prostatic silver catheter. The rigidity imparted by the stylet enables pressure to be applied to overcome any resistance offered by the close apposition of tough fibrous walls, and the flexible end readily finds its way over or around abrupt projections. All these manipulations must be conducted with the utmost gentleness, yet the most skilful instrumentation will occasion bleeding because of the intense congestion which always accompanies retention.

I have not failed yet to drain the bladder overdistended because of obstruction due to hypertrophied prostate by one or the other of the means above described. Nor have I had occasion to use the long silver prostatic catheter, an instrument which, except in the most expert hands, may inflict such traumatism as to make a cystotomy necessary at a time when this operation is most fraught with danger.

When prostatic obstruction does not yield to the soft instruments or to those stiffened to within an inch or two of the end by mandrins, and when the bladder is not infected, I believe that suprapubic aspiration offers a safer means of immediate relief, and consequently a lessening of congestion and spasm, than is afforded by forcible efforts to introduce metallic instruments into the bladder.

When because of bleeding and clotting the catheter introduced into the bladder fails to empty it of its contents, aspiration by means of the evacuating instrument used in lithotrity is indicated. This failing, the surgeon is certainly justified in draining by a perineal cystotomy.

When a catheter is introduced into the overdistended bladder, the urine should be drained off slowly, with the patient in the recumbent position. Nor should the bladder be completely emptied at the time of the first catheterization. When the urine is clear and sterile, about half the bladder contents should be allowed to remain. When there is blood or pus in the urine, all of this should be drained from the bladder, but without allowing this viscus to be entirely empty at any time. This end is attained by partly emptying the bladder, and then injecting into it an amount of boric acid or argyrol solution equal to half the quantity of urine withdrawn. With successive evacuations and injections the bladder can be thus immediately cleansed and gradually emptied.

Epididymitis.—Urinary retention incident to enlarged prostate, when complicated by suppuration, is likely to be attended by recurring and crippling attacks of epididymitis. Such attacks are especially common in patients who are compelled to depend upon the catheter for the evacuation of the bladder contents. When catheterization is accomplished in a cleanly manner, and regularly supplemented by irrigation, epididymitis is to a great extent avoided, but the most minute precautions will often fail in preventing this painful and crippling complication. A simple, safe, and absolutely successful means of preventing epididymitis is to be found in the performance of vasectomy, an operation which can be completed in a few minutes, and painlessly, under local anesthesia. The inflammation of the epididymis is due to an infection carried along the mucous membrane of the vas, hence the excision of a portion of this channel necessarily prevents the infection from traveling to the epididymis. The vasectomy is apparently attended by no shock. It does not influence the nutrition of the testicle, and does not necessarily confine the patient to bed.

Recurrent Stone Formation.—The frequency with which comparatively soft phosphatic calculi are found in the infected bladders of prostatic patients is well recognized. These stones are particularly amenable to the crushing and washing-out operation if a lithotrite can be introduced into the bladder and if the

latter is not sacculated. The difficulty encountered in grasping the stone because of the enlargement of the middle lobe is obviated by putting the patient in the Trendelenburg position. The frequency with which after apparently thorough crushing and removal these stones recur has given rise to the belief that the evacuation in the majority of cases is not complete. The recurrence is, however, equally as frequent after the cutting operation, and is doubtless caused by the chronic inflammation of the bladder walls.

Litholapaxy can be done under local anesthesia. The posterior urethra and bladder are thoroughly irrigated and then anesthetized by a four-per-cent solution of eucaine; an enema of 15 drops of deodorized tincture of opium and 20 grains of antipyrin in an ounce of water being given a quarter of an hour before operation.

In patients with crippled kidneys this operation is a serious one, and although Chismore does it in his office and allows his patients to proceed with the ordinary affairs of life, it is attended by a distinct mortality. It is therefore desirable to prevent the recurrence of such stones as will require the crushing operation. Systematic flushings with silver solutions are potent factors in attaining this result. A further desirable treatment consists of introducing into the bladder once a month the Bigelow evacuator and emptying it of any small concrements or sand which may have formed during the preceding weeks, and which, if allowed to remain, would give rise to large concretions.

Operative Treatment.—The operative treatment for prostatic hypertrophy is indicated where the obstructive symptoms become progressively more pronounced. The size of the prostate is of importance in considering the particular form of intervention. The advent of infection which does not yield to treatment, and particularly the appearance of symptoms referable to renal lesions incident to vesical obstruction, make operation imperative, the prognosis of a steadily increasing prostatic obstruction being absolutely bad. The operations to be considered are orchidectomy and vasectomy, the galvanocautery incision, and prostatectomy.

Orchidectomy and Vasectomy.—These operations are indicated in large, soft prostates. The result is uncertain, but is at times absolutely curative. From published statistics the mortality seems to be about as high as that attendant upon the more formidable operations. Since these procedures are as a rule reserved for cases of renal degeneration so marked as to make the performance of more extensive operations undesirable, it is probable the true mortality is much lower than that resulting from the various operations which deal directly with the prostate. In favorable cases the results of operation are rapid atrophy of the prostate, and the regaining, at times, of complete power to empty the bladder.

Galvanocautery incision is particularly indicated for small prostates with a large quantity of residual urine and bladder infection, these conditions not having yielded to overstretching. The short cautery knives of Young should be used, since in these cases the full-sized knives may readily cut completely into the rectum. This operation is often performed under cocaine anesthesia. I believe it safer to do it under oxygen and nitrous oxide, and in the small prostates to make the incision not longer than three-fourths of an inch. When the Bottini operation is applied to greatly enlarged prostates, the galvanocautery should be introduced through a perineal incision, since the main danger incident to the procedure is the prolonging of the incisions into the membranous urethra and a consequent extravasation and infection, which usually result fatally. Following this operation it is customary to allow the patient to void his urine by voluntary effort, or to empty the bladder by catheterization. I believe it is better to secure a catheter into the bladder and to practice twice daily antiseptic irrigations, thus avoiding the agonizing tenesmus which is not infrequently encountered when such drainage is omitted.

Prostatectomy.—This operation is indicated when the prostate is greatly enlarged, as determined by rectal examination, urethral measurement, and exploration with the intravesical sound and cystoscope.

When the enlargement is mainly intravesical, the suprapubic operation is

indicated. The bladder is opened in the median line, the patient being in the Trendelenburg position. With a pair of long scissors the mucous membrane of the vesical neck is divided just behind the internal vesical sphincter, and with the finger the prostate is enucleated from its capsule and from the overlying mucous membrane of the bladder and the urethra, counter-pressure being made by the fingers in the rectum. This operation is sometimes very easy. At other times it is extremely bloody and difficult, it being necessary to pick out the prostate by tearing away small fragments individually. The operation should be completed by perineal drainage.

When the prostate forms a large mass, and the perineum is not extraordinarily deep—indeed, in the great majority of cases when prostatectomy is indicated—the perineal route is the one of choice.

The simplest form of this operation consists in performing an external perineal urethrotomy, partially splitting the prostate by carrying the incision backward along the urethral floor and enucleating the gland by means of the tip of the finger, curettes, long curved scissors, and blunt dissectors, aided by tenacula and long clamp forceps. Counter-pressure is made either digitally through the rectum, by a Symes rubber bag introduced into the bladder and then filled with water, or by a full-sized sound so arranged that after introduction its terminal inch and a half can be turned to a right angle with the shaft by a screw handle.

A method of operating which gives a freer field and does not necessarily imply opening the urethra consists in placing the patient in such a position that the thighs are strongly flexed on the body, and the lumbar spine is bent forward. This is accomplished by high cushions placed beneath the buttocks and by leg holders. An inverted U incision with its two arms to either side of the anus midway between this opening and the ischiatic tuberosities, and its curve crossing the perineum just behind the root of the scrotum, enables the operator to turn back the superficial tissues, dissect up and draw forward the urethral bulb, push back the rectum, and expose the posterior surface of the prostate. This exposure is maintained by three long, narrow retractors. The capsule of the prostate is then split vertically on each side and seized in clamp forceps. By blunt dissection the prostatic lobes are then freed from the fibrous capsule. The urethra is preserved intact by cutting the gland away from its attachment to this canal, after it has been freed from its other connections. Should the urethra have been wounded, it should be closed by suture. The superficial wound is sutured and drained. Bleeding being mainly venous is readily controlled by pressure. When the capsule is friable or adherent and the prostatic growth fibrous and non-lobulated, much of it must be torn away piecemeal, long scissors with a short, sharp curve on the flat and long-handled, blunt-pointed, short-bladed knives being extremely useful.

GASTRIC LAVAGE.

By Thomas Hunt Stucky, A.M., M.D.,
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History.—Casinier Renault, in 1802, first recommended mechanical emptying of the stomach in cases of poisoning.

In 1810 Dupuytren made a large number of experiments with the stomach pump and demonstrated the advantages of mechanical depletion of the stomach.

Various experiments have been reported by Edward Jukes, of England. He went so far as to take large doses of opium himself, then cleared his stomach by means of a stomach pump which he invented. His instrument consisted of a syringe with a long esophageal tube. Other stomach pumps, nearly all alike, were invented by Dr. Physick, of Philadelphia; Read, of London, which was adopted by Sir Astley Cooper; Lafargue, of France, used a pipette resembling a siphon.

In 1829 Arnold and Somerville, then Plosz, constructed soft flexible tubes and used them as the siphon to remove liquids from the stomach.

In 1832 Blatier, of France, stated that it would be advantageous to associate lavage of the inflamed viscera, and the introduction of simple or medicated va-

pors with ordinary therapeutic means, and advised for this purpose the use of a sound to whose upper extremity was adapted the cannula of a suction pump. Blatier's idea, however, was not carried out at that time.[1]

It was not until 1867 that Kussmaul, at the fourth reunion of German Naturalists and Physicians at Frankfort-on-the-Main, called attention to the treatment of gastric cases by lavage, and this again introduced the tube and pump.[2]

To Dr. A. Siebert, of New York, is due its introduction into this country, who at a meeting of the Section on Pediatrics of the New York Academy of Medicine, in November, 1888, presented the first report on the subject, comprising a series of cases of acute dyspepsia and of acute and chronic enteric catarrh with vomiting in infants between seven weeks and one and a half years of age, which were successfully treated by lavage, with and without medication.[3]

Dujardin-Beaumetz gave this method of washing out the stomach the name of lavage.[4] According to Floy McEwen, lavage is indicated:

1. In gastric pain or marked oppression which has lasted a long time, which is getting worse, and which is not relieved by the ordinary methods of treatment.

2. In nausea and vomiting where these resist the ordinary drugs.

3. In waterbrash with canker sores (herpes iris) in the mouth, and burning in the mouth and throat and esophagus.

4. In sick-headaches with vomiting of bile.

5. In belching of wind.

6. In dilatation of the stomach—that is, not temporary, but permanent dilatation.

7. Where there is no disease of the stomach, but where patients have lost flesh and strength through either phthisis, Bright's disease, or hysteria.

Contraindications to the use of the tube:

(*a*) Advanced cardiac disease.

(*b*) Chronic endarteritis in those advanced in years.

(*c*) Any disease of the throat sufficiently advanced to obstruct the air-passages and interfere with respiration.

Any method of washing out the stomach in cases of morphine poisoning, for other purposes than the mere removal of the original dose of the drug, was suggested by the studies of Tauber and Alt, and by those of Leineweber, who showed that the gastric mucous membrane eliminates the poison. Later Hamburger reported an interesting case of a man who, having taken poisonous quantities of opium, was subjected to repeated lavage, with the result that each washing contained substances which gave fine alkaloidal reactions, and he frequently advises the use of the stomach tube in such cases for this reason, thoroughly indorsing the recommendations derived from the studies of the investigations already quoted.[5]

There are some precautions to be observed on the first employment of stomach washing, as the process cannot be said to be wholly without danger in a few cases. Thus, both Kussmaul and Lente speak of the attacks of a more or less general convulsive character following sometimes soon and sometimes a few hours after the operation, and particularly marked with general muscular rigidity. One case is reported of a patient admitted into the Adenbrooke Hospital, under Dr. Bradbury, for pyloric stricture. He was forty-eight years old, and had been an in-patient seven years previously, with symptoms of gastric ulcer. His stomach was now dilated, and he suffered from flatulence, vomiting, pain, and increasing weakness. On attempting stomach washing, soon after passing the tube into the stomach he became very faint, so that it was withdrawn. About two hours afterward he complained of stiffness of the jaws and rigidity of the arms, which were strongly pronated and flexed. The patient was unconscious and sweated profusely. The rigidity spread to all the muscles of the limbs and trunk, and in six and a half hours after washing out the stomach he died, the temperature having first risen to 107.2° F. Autopsy showed a pyloric stricture, with the scar of an old ulcer and a much dilated stomach; but there was no injury or abrasion of the gastric mucous membrane. The other organs were healthy, and no lesion of the brain was discovered.[6]

A common result of gastric lavage is

relief of the constipation, which is such a frequently accompanying symptom in cases of gastroectasis. It is probably due to suspension of intestinal peristalsis from the initial excitation of gastric movement being wanting.

Sajous reports a case of an elderly man who had derived much benefit from lavage for the fourth time, and who had practiced it upon himself without any apparent inconvenience; the patient was suddenly seized with a spasm of the throat in the night, some three hours after the washing, with no loss of consciousness, but with extension of rigidity to the arms. The attack subsided in half an hour, and he has had nothing similar since. Hence, says Sajous, it is best to begin with gentle procedures and not elevate the funnel above two feet until the stomach becomes more accustomed to the unusual sensations of the operation.[7]

Henry Dwight Chapin, of New York, states that lavage is unavailing in chronic gastrointestinal lesions with athrepsia, and in cases where acute dyspepsia begins, not by gastric disturbance but by intestinal troubles, such as colic, abdominal distention, and green stools.

Gastric lavage is equally inefficacious in children who exhibit signs of an inflammatory condition of the small or large intestine.

The reverse, he says, is true, however, when we have to deal with an artificially fed infant who has been suddenly seized with vomiting, anorexia, and the symptoms of collapse from acute indigestion. As in such a case gastric torpidity frequently exists, impeding the passage of the accumulated stomach contents into the duodenum, the intestine is in a way protected, at least for a few hours, from the infection of the decomposing food, and emptying the stomach by means of the sound, followed by lavage, procures an immediate cure and prevents secondary intestinal disturbance from being set up.[8]

George D. Kahlo, of Indianapolis, says that lavage is useful to the digestive system, especially for the very class of cases in which the drinking of large quantities of water would do much harm—that is, in atony or dilatation of the stomach with stagnation and retention of the food. It has also been proved very helpful in the treatment of chronic gastritis. Plain water may be used, but various medicinal solutions are occasionally substituted. The gastric douche, requiring the use of a tube with numerous fine openings at the lower end, and the atomizer, by means of which the interior of the stomach can be sprayed with astringent or antiseptic solutions, may be still more effective in certain classes of cases, especially in chronic gastritis.[9]

There is a tendency, says A. L. Benedict, to ridicule the idea of immediate danger from the passage of the tube, the instrument being soft, blunt, and flexible, but a real danger exists. The tube has occasionally been passed into the larynx, and in such an event immediate recourse to lavage would almost certainly drown the patient.

The only conditions in which the soft-rubber tube is to be thought of as a means of producing direct, mechanical injury, are aneurisms, varicosities, abscesses, and ulcers, so situated and with such delicate structures that the least scratch or pressure can determine a loss of continuity. Ewald condemns the use of the tube in gastric ulcer. He mentions cases of Cornillon and Daguet in which the tube caused fatal hemorrhage. Aneurism anywhere in the body, as well as calcareous arteries, not dilated, contraindicate the passage of the tube. On similar grounds all forms of cardiac degeneration, hernia, pregnancy, piles, and ulceration of hollow organs may be mentioned as contraindicating the passage of the tube on account of the danger of an elevation of internal tension. Such contraindication is not always absolute.

Tendency to laryngismus stridulus, asthma, chorea, epilepsy, and coenhysteria, may render the use of the tube inadvisable. Febrile diseases are generally held to contraindicate any such local interference, though the exact reason is usually not stated.

Acute gastritis, especially if the term be limited to the corrosive stage, contraindicates all but the most soothing applications to the stomach; but if the elimination of a poison must be thought of, the liability of damage from muscular strain of emesis is as great as from lavage and siphonage.

By conservation in the use of the stomach tube, Benedict says he means something more than the avoidance of fatal accidents or immediate injury. He says the temptation is strong to paraphrase a bit of cynicism into "any fool can pass a stomach tube, it takes a wise man to know when not to pass it," and further states that it is better to make the milder statement that the stomach tube ought not to be considered as bearing a much more important relation to the stomach than the catheter does to the bladder, or the syringe to the vagina or rectum.

Diagnostically, says Benedict, the tube aids in determining (1) the size and location of the stomach; (2) its degree of motility; (3) its secretory power; (4) the abnormal chemic changes that take place in chyme; (5) the presence or absence of mucus, epithelium, boils, foreign bodies, blood, etc.

Benedict concludes his able article as follows:

1. Don't use the stomach tube simply because you want to be considered scientific and "up-to-date."

2. Don't withdraw stomach contents for examination unless you are prepared to examine them.

3. Don't discard external means of physical diagnosis because you have a stomach tube.

4. Don't expect too much from diaphones, electric buzzers, buckets, complicated tubes, etc. All of these have their uses, but in general they are available in very rare cases.

5. Don't pass the tube without first inspecting the mouth and throat and examining the heart and arteries, and at least inquiring as to pregnancy, piles, and other possible contraindications.

6. Don't pass the tube as a means of treatment unless you know precisely what you want to accomplish with it.

7. Don't introduce a weight and bulk of water which you would consider injurious if swallowed. As a rule don't introduce more than a pint at once, and almost never more than a quart. Don't be deceived by the ball-valve action of a particle of food or any other cause which may allow water to remain in the stomach. Make sure that you withdraw as much as you introduce, except that you may allow a little for leakage through the pylorus, or possibly absorption. Remember the more a stomach can hold the less it ought to.

8. Don't imagine that the gastric douche will cure all the diseases of the stomach; you would laugh at a gynecologist who held such a view about the vaginal douche.

9. Don't imagine that a stomach is doing well until it can digest plain but varied diet without mechanical interference. Don't speak of a case as cured until the patient can indulge in all the ordinary foods without medical aid and without injury.

10. Don't let the patient learn to pass the tube himself. This rule holds for his benefit as well as yours.

11. Don't fail to use the tube or to have it used when the indications outweigh the contraindications.[10]

James Russell, M.D., F.R.C.P., extols the value of washing out the stomach and records a case of dilatation of that organ, covering a period of twenty years, which was successfully treated by lavage. Immediately after the first lavage flesh was regained with marvelous rapidity, and health was completely reëstablished.[11]

Leo has studied pathological conditions in 104 cases—60 of acute dyspepsia, with or without vomiting, sometimes with fever and sometimes with diarrhea; 22 of cholera infantum; 16 of gastric catarrh; and 6 of habitual diarrhea without disturbance of the appetite. The reaction was always acid except in some breast-fed children. Volatile fatty acids, lactic acid, acetic acid, and butyric acid were frequently present, the latter sometimes in considerable amount. Frequently an abnormally high amount of hydrochloric acid was present. Pepsin was usually found. Curdling ferment was always present.

One of the most constant accompaniments of dyspepsia was the lengthened stay of the milk in the stomach. In one case the author found 20 cubic centimeters (5 drachms) of milk. On the introduction of the sound, gases escaped even in healthy infants.

Leo's experiments show great benefit from washing out the stomach, because it is a certain means of removing the con-

tents and compensating a dyspepsia. It is unattended by danger. He uses water, or water with a weak alcoholic solution of thymol added. Diluted milk, or milk gruel, was the diet which suited most cases best. The results of stomach washing were, in his hands, very favorable. Often one washing sufficed; in many other cases only two; rarely were as many as three required. Vomiting ceased in a surprising way and the appetite returned. The best results were obtained in the cases of acute gastritis, where frequently after one washing out both fever and convulsions ceased. Less favorable results were obtained in cholera infantum, but generally satisfactory ones. Cases of habitual vomiting gave very good results, and in many cases of obstinate diarrhea the washing with a thymol solution was beneficial.[12]

Wesley M. Carpenter, of New York, says that opinion is divided on the permissibility of washing out the stomach in cases of gastric ulcer. Some maintain that if the patient submits kindly to the operation, and it be done carefully, and if the tube can be introduced without difficulty, and the stomach washed out gently, the procedure may be admissible. But under the circumstances the treatment is considered of doubtful propriety. In cases of carcinoma of the stomach, Carpenter believes this method gives temporary relief, if there is vomiting and hypersecretion of gastric fluids. The vomiting of phthisis may be due to causes other than those referable to the stomach, but when dependent upon disorder of the stomach itself, marked relief may be afforded the patient sometimes by employing this method of treatment. Caution, however, must be exercised in its application in cases in which the pulmonary disease is very far advanced. Great care also should be exercised in employing this method if resorted to at all in patients above sixty years of age.[13]

I. N. Love, of St. Louis, states that lavage of the stomach proves of value in extreme cases of catarrh of the stomach, when the secretions are in excess, and retained along with particles of food, and when a great tendency to fermentation is present. But he believes that this procedure, like many others of recent introduction, "has run the gauntlet of extreme and uncalled-for application," and records the case of a woman who was the victim of the excessive washing out of the stomach, and warns against its repeated and continued use for any length of time.[14]

A. D. Bundy, of St. Ansgar, Ia., reports a death from the introduction of a stomach tube. The patient, a woman aged twenty-seven, had chronic gastritis. The operation had been performed twice successfully, but during the third attempt she fell back and immediately expired. This case was recorded as a warning as to what might happen in any trivial operation upon patients with weak and fatty hearts.[15]

Reineboth refers to the diagnosis of carcinoma of the stomach by examination of the fragments of the tissue obtained in the washings after lavage, and highly recommends this treatment for the purpose of diagnosis of stomach diseases.[16]

The drug treatment of gastric disorders has fallen into comparative disuse, and there is a tendency—excessive it seems to us—to dwell largely upon the mechanical methods. Lavage is a procedure so strikingly useful in many cases that it has been greatly abused; in addition the treatment of gastric disorders has become so local that authors quite generally lose sight of the bearing up of the general condition upon the gastric diseases.[17]

Fenger and Hessert record a case of acute dilatation of the stomach which occurred after the operation of cholecystotomy. After the operation there was a good deal of gastric distress with vomiting and pain. Lavage greatly relieved all the symptoms, and removed a large quantity of greenish fluid, but the patient lost strength and died ten days after the operation.[18]

J. B. Murphy, of Chicago, in speaking of the employment of irrigating fluids in the abdominal cavity, says that the purpose of irrigation is, first, to remove the foreign material from the abdominal cavity; secondly, to dilute the poisons in this cavity; thirdly, to prevent adhesions; and fourthly, to prevent or stop shock.[19]

Dr. J. M. Carter, of Waukegan, Ill., in an exceedingly interesting article on the conservative use of the stomach tube in

the treatment of gastric diseases, advises the use of the tube for the purpose of lavage for the following six objects:

1. To receive indigested food and foreign matters.
2. To cleanse the mucous membrane for the action of medicines.
3. To check hemorrhage.
4. To give antiseptic douchings.
5. For sedative purposes.
6. For general tonic effects upon the stomach, mucous membrane, and parietes.

Carter points out some of the dangers accompanying its use, such as finding portions of mucous membrane attached to the tube when it is withdrawn from the stomach, and perforation of the esophageal or gastric wall. He discourages the habitual washing out of the stomach, and says that when lavage has accomplished its work it should be stopped.[20]

According to Boardman Reed, lavage helps many cases in a most striking manner; in others apparently similar it fails and may do no harm. He considers gastrectasis the most imperative indication for lavage, whether the disease results from narrowing of the pyloric orifice (cancer or other tumor, or the cicatrix of an ulcer), from a kink of the small intestines (which may follow displacement of the stomach, colon, or right kidney), or from atony of the muscular walls of the organ. In bad cases of gastric catarrh, and in patients not reduced in strength, provided all the results are encouraging, it will be proper to wash out every day at first, says Reed, until the amount of mucus is markedly lessened.

In nearly all cases Reed believes the best time for lavage is before breakfast. At the same time no remains of digested food are in the stomach to be washed away and lost to the system, except in the worst cases of dilatation.

Many good authorities, says Reed, advise that lavage be done at bedtime when fermenting food in the stomach prevents sleep. This may exceptionally be useful in cases of gastralgia, but diseased stomachs are rarely empty at bedtime, and washing away half-digested food is disastrous.[21]

M. W. Knight, of Milford, Mass., reports his experience after two years of treatment by lavage in cases of dyspepsia, chronic gastritis, ulcer of the stomach, vomiting of cancer, and chronic diarrhea, and says he is convinced it is a practical and sensible measure, and will not fail in the majority of cases to give gratifying results.[22]

Dr. J. Tipson, of Philadelphia, reports a case of dilatation of the stomach treated by lavage, in which the results were eminently satisfactory; in a second case in which he employed it the result was not so gratifying, and caused the patient great discomfort.[23]

Dr. A. L. Benedict, of Buffalo, says: "Without wishing to appear too conservative I will express the conviction that the man who regards lavage as a panacea for gastric troubles is on a par with the gynecologist whose resources begin with and go but little beyond the hot douche. Washing out the stomach is no more a mysterious source of good than catheterization and irrigation of the bladder, or the nasal douche, or an enema. Lavage should be practiced, not because it is good for dyspepsia, but because there is some definite end, either diagnostic or therapeutic, in view. It is useful in widely different conditions, but subject to the limitations of a discriminating consideration of the state of affairs in the stomach, and a prudent regard for the strength and nervous susceptibility of the patient.[24]

A. J. Meuer, of Denver, recommends lavage in the treatment of gastrointestinal disturbances in infants, and claims to have obtained wonderful results. In adults he has had excellent results, both palliative and curative, in the treatment of cases of cancer of the stomach, chronic gastric catarrh, chronic gastritis, gastric ulcer, gastric catarrh, with chronic hepatitis and dilatation of the stomach with slight catarrh and insomnia. In cancer and ulcer of the stomach, stomach washing has proved to have given the best results of any form of treatment.[25]

Whenever there is stagnation of food in the stomach there is dilatation of the organ, and it is in this class of cases that lavage has given such brilliant results.[26]

J. H. Musser, on the use and abuse of lavage, says it is personally employed, first, in cases of atonic dilatation, where the retention is extreme; secondly, in cases of organic pyloric obstruction;

thirdly, in cases of gastric neurasthenia and in certain cases of hysteria; fourthly, in some cases of chronic gastritis with subacidity. This limits its practice to a small number of cases only.[27]

Dr. S. Solis-Cohen, of Philadelphia, in a paper on lavage in the treatment of gastric affections, says that the effects are most marked in cases of dilatation of the stomach. In the chronic gastritis of drunkards the measure is said to be an excellent palliative, nor is hematemesis considered a counter-indication, unless actual ulceration exists. In cancer of the stomach it is useful as a palliative measure.

In Kussmaul's clinic, and subsequently by Senator, Rosenthal, and other observers, it was successfully employed in the treatment of ileus.

Dr. Cohen resorted to this treatment in one case of acute indigestion with obstinate vomiting in a phthisical female, with gratifying result.[28]

L. G. Vischer, of Los Angeles, Cal., says that when we classify our therapeutical measures in occlusio intestinalis as dietetical, mechanical, and surgical, we ought to mention the washing of the stomach at the head of the mechanical ones. He further says: "The value of this procedure is a double one: First, we lessen the pressure above the occlusion with a consequent anxiety of the excessive peristalses which frequently are the chief obstacles for the self-reduction of the occluded bowel. By emptying the stomach the retrograde of flux of the duodenal and jejunal contents is materially helped, as shown by the fact that sometimes two or three hours after the lavage a second washing carries off a considerable amount of the intestinal contents. Not necessarily is this fecal matter. Second, by emptying stomach and bowel above the obstruction we remove putrescent matter, which in addition to the nervous shock and the local anatomical changes by its absorption causes toxemia, fatal in its effect."[29]

Bouveret and Devic observed tetany after lavage in twenty-one cases that they collected (*Revue de Méd.*, February, 1892). In all thirty-four such cases of tetany of gastric origin are on record, though not all due to lavage. Ewald reported two cases that are of interest; one a male aged forty-five, who died from a sudden, copious, esophageal hemorrhage two days after he had sought relief by introduction of the esophageal sound. There were symptoms of mediastinal tumor or aneurism. The second patient died suddenly while he was introducing the tube himself; the autopsy showed a dissecting aneurism at the beginning of the ascending aorta, still within the pericardium.

Ferichs and Penzoldt have reported similar cases. Every new patient should, therefore, be examined for abnormal conditions within the thorax before lavage.[30]

J. T. Green, of Leitchfield, Ky., mentions a few of the organic and functional disorders of the stomach in which we are most likely to obtain the best results from stomach washing, namely, gastritis, gastric catarrh, chronic ulcer, sarcinæ, dyspepsia, gastrodynia, gastralgia, pyrosis, fibrosis, colloid tumors of the gastric mucosa, and fungi of the mucous surface of the stomach.

Green strongly advocates lavage in gastric troubles, and believes that a timely stomach wash would rescue many a child from the grave, especially those who die from results of such disorders as ileocolitis, marasmus, and autoinfection.[31]

W. D. Booker, from his experience with stomach washing in children based upon its use in 150 cases of gastrointestinal disturbance at the Thomas Wilson Sanitarium during the summer of 1888, and 40 to 50 cases at a New York dispensary, concludes that stomach washing is of undoubted advantage in the treatment of the digestive disorders of infants.

Booker is much impressed with its value, and says that it proved the quickest and most effective means for the relief of vomiting; in the majority of cases vomiting ceased after the first lavage, and in only one case was it found necessary to stop milk food before vomiting was checked. The number of stools gradually diminished in most cases, and in acute cases, or in those of short duration, stomach washing generally afforded complete relief without any other treatment than attention to diet and cleanliness.

Constipation dependent upon a catarrhal condition of the gastrointestinal tract

may sometimes be entirely relieved by stomach washing.

. Booker reports the case of a child of eleven weeks, emaciated, fretful, and weak, that seldom had a natural stool. Generally it had long spells of constipation alternating with attacks of diarrhea. Stomach washing was practiced daily for two weeks, when the bowels were moved regularly once or twice daily; fretfulness had disappeared, and the child was stronger and commenced to grow.

Booker found stomach washing of great advantage in cases of acute poisoning. A child about three years of age was brought to the dispensary within a few moments after swallowing an unknown quantity of carbolic acid, in a state of unconsciousness and collapse. The stomach was thoroughly washed out, and almost as soon as the operation was completed the child became conscious, the radial pulse appeared, and a good recovery followed.

Booker believes stomach washing is contraindicated in children affected with heart disease, serious bronchitis, and pulmonary trouble. When the tube continues to excite vomiting and strong resistance, it is doubtful if advantage follows its use. A feeble condition of the infant does not necessarily contraindicate stomach washing, but often the opposite.[32]

Dr. Antonino reports a case of purulent peritonitis in a girl five years old, consequent upon an attack of typhoid fever. The pus made an opening in the abdominal wall near the umbilicus; about three quarts of pus escaped from the opening. Copious lavage of the peritoneal cavity with a two-per-cent boric acid solution was made. The child recovered.[33]

Samuel T. King, of New York, reports admirable results in six cases of chronic gastritis from the treatment by lavage.[34]

According to Hemmeter, lavage and introduction of the tube are contraindicated in all constitutional and local conditions which could be aggravated, or life endangered, by the irritation and exertion of lavage:

1. Pregnancy.

2. Heart disease—in a state of defective compensation—heart neuroses, angina pectoris, myocarditis, and fatty heart in an advanced stage.

3. Aneurism of the larger arteries.

4. Recent hemorrhages of all kinds, including apoplexies, pulmonary, renal, vesical, gastric, rectal hemorrhages, and hemorrhagic infarctions.

5. Advanced pulmonary tuberculosis.

6. Advanced pulmonary emphysema with bronchitis.

7. Apoplexy and cerebral hyperemia.

8. Advanced cachexia.

9. Presence of continued or remittent fever.

Secondly, the stomach and intestinal diseases which are contraindications for the use of the tube are:

1. Ulcer with recent hematemesis and evidences of blood in the stools.

2. Palpable carcinoma of the pylorus, with vomiting of coffee-ground material, and the classical symptoms of cancer.

3. Stomach or intestinal troubles with acute fever.

4. Gastric mucosa easily started to bleeding.

5. Secondary gastric affections whose dependence upon a distinct and more important primary disease is evident.

These are not invariable rules, however; cases may occur under some of these exceptions that at times peremptorily require lavage on account of depressing self-intoxication from the stomach, or advanced gastric fermentation. Thus, according to Boas, it has been employed with success in pregnancy; and the author has washed out the stomach in cases of typhoid fever with favorable result, and also performed lavage in a case of aortic regurgitation with Bright's disease, and gastrectasia, where much relief was experienced from the procedure.[35]

Although it is not a dietetic therapy, Hemmeter says that lavage is indicated in gastric diseases; if large masses of decomposed food are vomited, the stomach tube is indispensable.[36]

In brief, says Hemmeter, lavage is indicated (*a*) where the exit of the chyme from the stomach is hindered by a mechanical obstruction, giving rise to decompositions. To this class belong all forms of dilatation, except those depending on simple atony, for here we are not dealing with any obstruction to the overflow, but with the lowering of the peristalsis, which is not markedly benefited by

lavage. Dilatations that indicate lavage are due to cicatricial stenosis, or neoplasm of the pylorus and duodenum, and impairment of motor function in consequence of carcinoma, sarcoma, syphilitic and tuberculous gastritis, myasthenia, contractions caused by acids, or alkalies, or other chemicals. The benefit derived from lavage must vary with the stage at which the treatment is undertaken. (*b*) The second main indication is where foreign or irritating collections are mixed with the gastric contents, which sooner or later interfere with digestion. The collections may consist of abnormally augmented gastric juice, or gastric, pharyngeal, and esophageal mucus, and of bile.

It is very dangerous to wash out the stomach with medicated and antiseptic solutions without ascertaining whether all the solution flows out again. Even with simple water overloading of the stomach cannot be avoided except by measuring the outflow.[37]

Robert F. Williams, of Richmond, Va., says that in many instances of acute gastritis and acute fermentative dyspepsia, in which vomiting does not relieve the organ of its irritating contents, the stomach tube offers a speedy relief far superior to the use of emetics, as being sure, while emetics sometimes fail, and as being soothing, whereas the emetics usually prescribed produce their effect by irritation, which is best avoided in an organ already irritated to the degree of lessened function. He obtained most satisfactory results in the treatment of chronic gastritis, and says that gastric lavage seems to him to be the rational basis of treatment in this disease. Marked relief followed the first washing, the sensation of nausea disappeared immediately, and the patient was able to enjoy the next meal, when gastronomic pleasure had been to him a lost art perhaps for months. Such gratifying results rarely failed to appear in two or three days.

Williams also obtained brilliant results in the treatment of nervous dyspepsia. These results were due chiefly to the reflex nervous stimulation produced by the procedure.

He highly extols gastric lavage as a palliative measure to assuage the suffering incident to dilatation which so closely resembles gastric dilatation in symptomatology, but in which no real enlargement of the organ is present, which Ewald termed gastric insufficiency or motor insufficiency of the stomach. The results were most favorable; not only were the symptoms relieved, but by this practice the stomach was restored to normal function.

Another very useful purpose subserved by the stomach tube, says Williams, is the procuring of stomach contents for chemical analysis. The tube once passed into the stomach, a quick contraction of the abdominal muscles, as in retching, will easily expel the contents in sufficient quantity for any analysis.[38]

Soltau Fenwick states that the contraindications to the use of the continuous douche are the same as those in the case of the ordinary siphon, and are shortly as follows: All constitutional and local diseases in which the complaint would be aggravated or life endangered by the irritation and exertion of lavage. Among these could be mentioned:

1. Pregnancy.
2. Heart disease in a state of defective compensation, cardiac neuroses, angina pectoris, myocarditis, and fatty heart in advanced stage.
3. Aneurism of the large arteries.
4. Recent hemorrhages of all kinds, including apoplexies, pulmonary, renal, vesical, gastric, and rectal hemorrhage, and hemorrhagic infarctions.
5. Advanced pulmonary tuberculosis.
6. Advanced pulmonary emphysema with bronchitis.
7. Apoplexy and cerebral hyperemia.
8. Advanced cachexia.
9. Presence of continued or remittent fever.

Secondly, certain diseases of the stomach, such as:

1. Ulcer with recent hematemesis and dark stools.
2. Palpable carcinoma of the pylorus with vomiting of coffee-ground material, and the classical symptoms of cancer.
3. Many gastric neuroses in which the character of the malady is clear without lavage.
4. Stomach or intestinal troubles with acute fever.

5. Gastric mucosa easily incited to bleeding.

6. Secondary gastric affections whose dependence upon a distinct and more important primary disease is evident.[39]

McLane Hamilton finds lavage one of the most successful treatments in insanity connected with autotoxicosis.[40]

Fenwick reports a case of tetany of gastric origin in a man forty-six years of age, who had suffered from ulceration of the stomach for more than four years. The first attack of tetany followed a violent fit of emesis, and lasted two hours. The seizure was repeated several times, but finally ceased after lavage of the dilated stomach had been instituted. The nervous symptoms are of three kinds—tetany, tetanus, and epileptiform convulsions. All varieties of the disease are extremely fatal, no fewer than seventy per cent having terminated in death. An organic poison is probably manufactured in the dilated stomach, and by its absorption into the general circulation acts upon the central nervous system as a convulsant. The appropriate treatment for the disease is to empty the stomach, and to maintain it in a state of comparative asepticity by means of daily lavage.[41]

Fenwick, in an exceedingly interesting and valuable paper on some of the dangers of washing out the stomach, states that the chief among them are convulsions and tetanus, syncope and sudden death, perforation, hemorrhage, injury to the gastric walls through the use of a stiff tube, and poisoning by antiseptic substances. He records a number of cases illustrating each of these dangers, and concludes by saying: "At the present day every imaginable symptom that can in any way be connected with the digestive organs is immediately considered as an indication for the use of lavage, and we find that not only are chlorosis, atonic dyspepsia, and the gastric crisis of ataxia subjected to this treatment, but even cases of reflex vomiting are supposed by some to necessitate the employment of the douche. But it is obvious that in those cases where the treatment fails to do good, it is extremely likely to do harm, since, as Leube pointed out, it has the effect of removing those products of digestion whose manufacture has caused the stomach a considerable amount of labor. And for my own part I fail to understand how washing the organ in a case where the normal amount of secretion proves insufficient can possibly increase its digestive powers; or the lavage of the stomach prevent the occurrence of symptoms which are wholly dependent on organic disease in another organ remotely situated. In one case of tabes dorsalis, accompanied by exceedingly severe gastric crises, I had the stomach washed out every day for some weeks and the state of digestion carefully watched; but beyond the fact that the symptoms of the disease grew steadily worse, I could detect no material alteration in the condition of the patient. In like manner, the few cases of atonic dyspepsia and chlorosis which I have treated by lavage have without exception proved exceedingly rebellious and only improved when subjected to the more ordinary course of medical treatment. I would therefore conclude by saying that although lavage is an invaluable remedy in certain cases of gastric disease, its indiscriminate employment in every case of disordered digestion will prove a curse rather than a benefit, and will eventually throw discredit upon the whole method of treatment."[42]

In anemia perniciosa lavage may prove of great advantage in controlling obstinate vomiting and in improving the digestion forever.[43]

Dr. Harvey Attfield has contributed an interesting paper on the subject of gastric lavage, in which he groups the cases which are most benefited by the use of the siphon tube into one large class, namely, those in which from any cause the food is retained in the stomach too long a time for material digestion to occur without abnormal fermentation. This main class may be subdivided into the lesser groups, thus: (*a*) where the muscular power of the stomach is insufficient to discharge its contents into the duodenum; (*b*) where there is a spasm of the pylorus; (*c*) where there is abnormal dilatation of the stomach, whether depending upon organic obstruction or any other cause; (*d*) some cases of cancerous disease; (*e*) those rare cases in which the stomach is not simply dilated, but also shows a tendency to sacculation, after the manner of the stomach

of a ruminant; (*f*) obscure cases of stomach vomiting and gastric pain.

Dr. Attfield gives a brief outline of several cases, and then concludes: "In all these cases the results of lavage were eminently satisfactory. The results are summarized as follows: (1) In the first place vomiting is entirely checked; in some of the cases after one washing only, and in others after two or three repetitions. (2) Again, by the use of the tube, as soon as the early symptoms show themselves, the patient is spared the twenty-four to forty-eight hours or more of gradually increasing debility, nausea, and in some cases very severe pain, which are the forerunners of an attack of acute vomiting. (3) Following on the cessation of vomiting comes a marked degree in pain. This pain is probably the result of several causes, which are removed by the lavage: (*a*) probably the stomach by reflex action contracts strongly on its slimy, fermenting contents, thus producing distress; (*b*) there is probably a certain amount of inflammation of the mucous membrane, which will be reduced by removing the irritating stomach contents. (4) Increase of appetite is an invariable result of lavage. (5) Another remarkable advantage of lavage is the spontaneous action of the bowels which frequently follows even in cases which have been the subjects of constant constipation. (6) By lavage, as already indicated, we can completely empty the stomach of its contents, which it only incompletely does for itself by the painful and depressing act of vomiting. (7) Finally, by emptying the stomach, we put it in the best condition for recovering from its dilatation, a dilatation which by the liability of the resulting voluminous walls and folds of the stomach to obstruct the pylorus tends always to increase. We, in fact, thus help to break a vicious circle, in which the stomach trouble causes debility, and debility increases stomach trouble. In a word, by removing hindrances to nature's powers of cure, we enable her the more easily to carry on her therapeutic work."[44]

Huchard recommends the use of lavage in the vomiting of uremia, both for the purpose of removing the poison and in order to make it possible to administer proper medicines by the stomach.[45]

Occasionally a large quantity of mucus is found in the stomach in cases of hyperchlorhydria, but as a rule we find it most frequently in gastric catarrh, where the hydrochloric acid is diminished or absent. In such cases lavage is useful in helping to restore the glands to a condition of activity.[46]

For examination of the stomach and its contents, Walter S. Spencer, M.S., M.G., F.R.C.S., says with regard to lavage of the stomach that some patients are in no way troubled by the passing of an esophageal tube and the irrigation of the stomach; they become used to it, and can even do it for themselves. But others object strongly; it repels them from undergoing further treatment, and may cause marked shock. Generally speaking, it is better to confine oneself to the examination of the vomit rather than promote discomfort or worse. If the patient is fed for a few days before the operation largely by the rectum, and during the last twelve hours entirely so, the natural antiseptic action of the hydrochloric acid is able to assert itself. If the patient is not disturbed, the contents of the stomach may be removed after a meal, or six hours after a test meal of soup meat, bread, and a glass of water. If undigested material is found after this interval, it is evident that digestion is distinctly delayed; there is gastric stasis.[47]

Siebert, in a paper read at the American Pediatric Society upon the mechanical treatment of the gastrointestinal disorders of infants, reports upon 521 cases of stomach washing with highly satisfactory results. He states that the removal from a stomach and intestines of residual masses of food, and their accompanying bacteria and ptomaines, is the first and most important indication in acute gastrointestinal catarrh. Even when there is no nausea, stomach washing is indicated. Collapse is no contraindication; on the contrary, the deeper the collapse, just so much more rapidly and energetically must stomach and intestinal washing be carried out. In older children stomach washing may be replaced by allowing a child to drink freely of cold water, and then inserting the finger into the fauces, making pressure at the same time upon the stomach, the head being inclined forward.

Siebert believes plain water to be the best fluid for both stomach and intestinal irrigation.[48]

Marten brings forward a case of death following shortly upon washing out a dilated stomach, and warns observers that lavage is not always the simple and innocuous operation generally described. The case recorded was one of stricture of the pylorus, probably due to a cicatrix from an old ulcer. There was dilatation of the organ, attended with pain, vomiting, flatulence, and general malnutrition. It was decided to wash out the stomach, and a tube was passed for that purpose; but shortly afterward the patient felt very faint, and the tube had to be withdrawn. Two hours later stiffness in the jaws and rigidity of the arms appeared and passed quickly into a condition of general rigidity, the temperature rising to 103.4° F., consciousness remaining intact. Death occurred apparently from spasm of the diaphragm, the temperature rising just previously to 107.2° F., six and a half hours after the manipulation. At the autopsy no injury to the stomach could be found, and the diagnosis formed during life was verified.[49]

Jacobi, in discussing the treatment of chronic gastric troubles, speaks in the following guarded way about this therapeutic measure: Occasionally irrigation of the stomach may be resorted to with advantage.[50]

With reference to stomach washing in acute gastroenteritis, he (Jacobi) says: "When the process of fermentation is still limited to, or going on in, the stomach, or the stomach still contains injurious masses, these ought to be brought up. In such a case the sound judgment of the practitioner has to decide whether emesis is still useful, or whether the stomach ought to be irrigated and washed out. Most cases of gastroenteritis are preëminently enteritis; therefore the claim that the washing out of the stomach must not only take place in every case, but is the almost infallible remedy in the very worst class of cases, which have no other result but that of discrediting that useful procedure in the eyes of those who are inclined to believe implicitly in the value of new methods and the pretentious claims of short-sighted enthusiasts. In fact, the injurious element is, in most cases, beyond the reach of the stomach pump, indeed the latter cannot remove anything but what is dissolved or suspended; the expulsion of large masses, curd particularly, through an elastic catheter is out of the question."[51]

Fancher has used lavage extensively and recommends it even in newly-born infants. There is no difficulty in introducing the tube, it being as easy as in adults. The suction movements made by young infants are decidedly an advantage. A single case is reported showing the marked influence of the treatment unaided by drugs: Child, twenty-seven days old, emaciated, constipated, and vomiting everything. Most remarkable relief followed first operation, and without the use of medicine; the child recovered completely; the mother was taught to wash out the stomach herself, and continued it without difficulty during convalescence.[52]

Epstein, of Prague, pioneer in stomach washing in children, gives a further report of his experience, now extending to over one thousand cases. Thus far he has had no accident of any kind. He has found it useful in all forms of gastric dyspepsia, but the greatest triumph by this treatment he has found to be in acute gastrointestinal catarrh. While most useful in the beginning of the attack, its usefulness is not limited to this period, as Soltman states.[53]

Epstein indicates lavage (1) in cases of repeated vomiting; (2) in cases where there is present an affection of the mouth which is capable of extending to the stomach; (3) in cases of eclampsia caused by indigestible substances; (4) in cases of poisoning. After the lavage the child should remain perfectly quiet for fifteen or twenty minutes before nursing.[54]

Dr. B. Lewy reports a case of gastric cancer, with atrophy of the mucous membrane and total absence of HCl, where the patient complained of torturing pains which radiated to the spine and to the larynx, which no remedies, including opium, relieved; but as soon as stomach lavage was employed they ceased at once, their recurrence being prevented for the rest of the patient's life by the immediate recourse to the washing whenever the pains began again.[55]

Einhorn uses lavage in two conditions only, viz., stagnation of food in the stomach, and in cases where a large amount of mucus is found in the organ.[56]

According to Martin, lavage is contraindicated in thoracic aneurism, in serious cardiac diseases, in recent bleeding from any part, in great debility, or in patients of advanced age, and in gastric ulcer. The dangers connected with its use which he gives are syncope from sudden filling and emptying of the stomach, thus changing the pressure on the great abdominal plexuses, and tetany, of which several fatal cases have been reported, and which could not be attributed to any other cause.[57]

M. Forlanini records several cases of chronic gastric catarrh which were successfully treated by washing out the stomach with a weak solution of nitrate of silver. Forlanini finds that the silver nitrate stimulates the mucous membrane, gives tone to the muscular walls, and diminishes the gastric distress, a marked diminution being observed in the production of mucus. This method of treatment he found especially applicable to cases of chronic catarrh with dilatation.[58]

Perry finds that lavage is of great value in the treatment of both acute and chronic gastric catarrh. By its means it is often possible to cut short an acute attack in a day or two, while cases of the chronic type yield rapidly to daily lavage, and sometimes are cured in a few weeks.[59]

Rosenheim recommends the washing out of the stomach for nervous dyspepsia and chronic gastritis, with or without impaired motility. If the douching was done with the solution of sodium chloride an increase in the HCl production could be ascertained; whereas nitrate of silver caused a reduction of the secretion.[60]

Reale believes that lavage of the stomach is indicated in all cases of chronic gastric catarrh when hypochlorhydria and atony of the stomach are present, and that cure may be obtained more rapidly by this method than by any other. The action also upon the various symptoms, such as vomiting and the subjective symptoms particularly, and upon the secretion of hydrochloric acid, is always beneficial. He reports eleven cases in which the treatment was used with excellent results.[61]

Marro has treated twelve cases of acute delirium by washing out the stomach. Only five of these, however, presented the features of what he regards as acute delirium, properly so-called, viz., rapid onset of the disease, elevation of temperature, profound mental confusion, with terrifying hallucinations, and general muscular twitchings.

In all of these five cases the treatment was followed by rapid improvement in the mental condition, while of the remaining patients four recovered and three died.[62]

Greenwood obtained marked and surprising success from the use of repeated lavage in cases of refusal of food (in insanity) arising from acute gastric catarrh. The success of this washing out of the stomach was shown by return of appetite, by patient taking food, or by improved digestion evidenced by gain in weight where the food was still refused.[63]

Dr. Cohen, in a paper on lavage of the stomach, claims for it that it merits all the good which has been written about it, and that it bids fair to enlarge our therapeutic resources against those obstinate conditions of gastric catarrh, functional dyspepsia, etc., which are a source of distress to the patient, of annoyance to the physician, and of profit to the pepsin and patent medicine manufacturers.

Alfred G. Bateman, M.D., states that if microörganisms do play a part in the formation of ulcers of the stomach, and indeed in the many affections of that organ for which they are held liable, it is quite certain that in lavage or washing out of the stomach we possess a valuable means of dealing with them.[64]

Haymen states that in functional derangements of the stomach, as, for instance, gastrosuccorrhea, the only treatment which gives relief, apart from the performance of gastroenterostomy, is the employment of lavage combined with a strict regimen.[65]

Dr. Heubner states that lavage of the stomach has been discredited from being used in improper cases.[66]

J. W. Springthorpe, M.D., M.R.C.P., Australia, says that the vomiting associated with infantile diarrhea is best treated by thorough lavage.[67]

Pregnancy is ordinarily a contraindication, but in the vomiting of this con-

dition lavage frequently gives very marked relief.

Most authorities condemn the use of the stomach tube in gastric ulcer and carcinoma, yet, according to Delafield, in carcinoma of the stomach the patients can often be made much more comfortable, and even enabled to eat ordinary meals by the daily washing out of the stomach, and in gastric ulcer its exhibition is often attended with marked benefit.[68]

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HIP-JOINT AMPUTATION; PREVENTION OF HEMORRHAGE.

In performing an exarticulation at the hip by Rose's method, a large amount of blood in the intraosseous vessels remains uninfluenced by an elastic bandage and ligature, and, according to RIEDEL *(Centralblatt für Chirurgie,* July 19, 1902), is lost when both the femoral artery and vein are ligated at an early stage of the operation. This loss of blood proves highly deleterious to the patient, especially if his vitality has been impaired by a previous exhausting disease or severe injury.

The problem of preventing this loss is solved by ligating the artery only at first and postponing the ligating of the vein until the last stage of the operation. In this way the negative pressure existing in the thoracic cavity and large venous trunks is enabled to withdraw the blood from the intraosseous vessels before the completion of the operation, so that after ligating and dividing the femoral vein, only a few drops of blood are lost from its distal end.

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SURGICAL AND GENITO-URINARY THERAPEUTICS.

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Leading Articles.

THE THERAPEUTIC VALUE OF LITHIUM.

There are a number of drugs quite largely employed by the medical profession, and a still greater number employed by the laity, about which there is considerable doubt as to their therapeutic efficacy. The confidence which exists as to their value as remedial agents is based rather upon reputation than upon actual demonstration, and too often facts in their favor have been recognized while others which strongly militate against their employment have been ignored. It is now many years since the idea was first introduced that rheumatic conditions depended upon abnormal acidity of the blood, and that for this reason alkaline substances were advantageous in that they neutralized this excessive acidity. Since those days it has been found, first, that many of these substances do not produce any change whatever in the alkalinity of the blood; secondly, that practically none of these diseases depend upon excessive acidity of this fluid; and thirdly, that any acid which may be present is rather the effect than the cause of the malady. Further than this, it has been found practically impossible to materially modify "the acidity of the blood" by the internal administration of alkalies.

Another view which has been quite popular with both the laity and the profession has been that lithium, and its salts, was of value in the treatment of the "uric acid diathesis," so-called, in that it had a great affinity for uric acid when added to a solution of that substance in a test-tube, forming immediately a soluble urate of lithium which it was thought could be readily eliminated from the body by the kidneys. As it was also thought that lithium possessed powerful diuretic properties it was supposed to be additionally valuable in the class of cases which we have mentioned in which that *bête noire* known as uric acid was present. In a vast majority of instances in which uric acid is supposed to be the disturbing factor in the economy, it is not uric acid itself but by-products or side-products of metabolism, which might perhaps have ultimately developed into uric acid had the normal processes of the body not been interfered with. The idea that uric acid itself is the poison which many persons have thought it to be is now rapidly passing away. Further than this, in the case of lithium, while it is true that uric acid and lithium have a combining affinity for one another in the test-tube, it is also a fact that when this substance is taken internally, and so enters the human economy, it has a far greater affinity for the acid sodium phosphate in the blood than for the uric acid; and while it is perfectly true that solutions of lithium when brought in contact with uratic deposits around gouty joints aid somewhat in their solution, the influence of lithium when taken internally upon these joints is exceedingly feeble or remote, since strong solutions of lithium must come in contact with these deposits to produce any material effect. We think, therefore, that it may be pretty well decided that lithium as a remedy for what has been called the uric acid diathesis does not form a very important part of the medical armamentarium.

Our attention has recently been called to a useful article by Dr. C. A. Good in the *American Journal of the Medical Sciences* for February, 1903, in which he reports the results of an experimental study upon lithium. After dealing historically with some of the facts in regard to the administration of lithium, he concludes that it is rapidly absorbed but slowly eliminated; that large doses of it are capable of causing an even fatal gastroenteritis; that lithium salts do not possess any diuretic action that cannot be accounted for by their salt action—they render the urine alkaline, and thus act like the other alkalies; and finally, that dilute solutions of lithium salts are not solvents for uric acid or urates. In a number of instances we have seen the administration of large quantities of the citrate or carbonate of lithium produce circulatory depression with vascular relaxation and moderate sweating. These symptoms have usually been assigned by the physician and the patient to the disease rather than to the medicine, but as we have seen them produced in persons who really were not suffering from any malady, but were simply taking the lithium with the idea that it was good for their kidneys, we feel confident that the drug was responsible for the result named.

CLIMATIC TREATMENT FOR SYSTEMIC MALADIES.

Increasing experience is impressing upon us more and more the fact that patients suffering from severe diseases not only require careful treatment so far as drugs are concerned, but also need surroundings which are qualified to improve their general health, to increase their vital resistance, and thereby enable them to combat the maladies from which they are suffering. Indeed, it may be well said that drugs, in many instances, are solely of value for the purpose of putting aside symptoms which are annoying, and that the question of speedy recovery must chiefly depend upon the vital powers of the patient. It is becoming a matter of daily experience that pulmonary tuberculosis can rarely be cured by medicinal agents, whereas in a great number of instances, in its early stages, it can be rapidly overcome by resorting to a proper climate. If a favorable climate cannot be obtained, it has been found to be a fact that the open-air treatment of this disease, even if carried out in selected spots in great cities, is capable of producing splendid results. In New York and Pennsylvania we have various resorts to which tubercular patients may be sent, and where they may rapidly gain in weight and strength, although these places naturally do not possess the number of hours of sunshine or the other climatic conditions which make the Engadine in Switzerland and Colorado so noteworthy. At the White Haven Sanitarium, not far from Philadelphia, it has been found that the open-air method of treating tuberculosis, combined with proper feeding, results in a very extraordinary gain in weight in most patients who are sent there, so that out of ten or fifteen patients as much as an average of 25 pounds gain in weight is accomplished in a very short time.

Our attention has been once more called to this important subject by an article upon the open-air treatment of syphilis contributed by Dr. Douty, of Davos-Platz, Switzerland, to the *Boston Medical and Surgical Journal* of January 29, 1903, in which he shows very clearly that a high, dry altitude and an open-air method of life is as valuable in early syphilis as in tuberculosis. Those who have seen much of early syphilis will recollect the rapidly developing anemia and the general impairment of health which occurs in many instances, and we now know that a high altitude with fresh air and sunshine causes a very rapid development of hemoglobin and red blood cells. This method also prevents the early syphilitic from resorting to unhealthy hotel life, as is commonly done at resorts devoted to the treatment of this disease. Douty therefore advises, as a result of his own experience, that when a patient comes to us suffering from syphilis we shall, if he can afford it, give him the advice that we give to tuberculous patients, namely, that they shall live for a year or two in the open air, be well fed, and select the best climate possible for combating the disease from which they are suffering. While it is true that for syphilis we have the great

specifics mercury and iodide, it is also true that these can do little if there is a lack of vital resistance, and we believe that Dr. Douty's advice in regard to this matter is based upon sound reasoning and well founded clinical experience.

THE IMPORTANCE OF A CORRECT DIAGNOSIS BEFORE TREATMENT.

More than once we have printed in the editorial columns of the GAZETTE text bearing upon the subject of this editorial, but its importance justifies us in calling attention at this time to a most excellent address on the acute manifestations of chronic diseases delivered by Dr. J. Mitchell Bruce at the opening of the winter session of the Midland Medical Society of England, which he has published in the *British Medical Journal* of December 6, 1902. In this article he clearly indicates how easy it is for a physician to be misled into thinking that a patient is suffering from an acute malady, to prescribe for this malady, and to entirely overlook the fact that the acute manifestations are simply exaggerations of chronic disease or superimposed upon chronic processes. Thus, he instances one case in which a woman apparently in excellent health was taken acutely ill with abdominal symptoms, was treated for appendicitis, but an operation revealed a ring-shaped carcinoma of the lower bowel, which was the cause of all her difficulty. He calls attention to another instance in which an early tuberculosis had been quiescent for many years, only to break out in later life, when it was thought to be a recent and acute manifestation; and still other cases in which pleurisy was thought to be acute and yet was really dependent upon a preceding tuberculosis of the lung. Again, he cites an interesting instance in which what apparently was severe bronchial catarrh in reality depended upon a gouty diathesis, and the institution of gouty treatment did more for the bronchial catarrh than any mere direct medication could have done.

We have seen such instances several times in our professional life, and in one patient alone at various times we have found severe acute conjunctivitis, what appeared to be true angina pectoris, bronchial asthma, neuritis, and severe diarrhea; each and every one of these were manifestations of true gout, were but temporarily modified by ordinary treatment, but were relieved at once by treatment devoted to the gouty conditions. To quote Dr. Bruce, "too often acute illness, if looked at by itself, and by itself only, attracts our attention to chill, exhaustion, injury, and passing nervous influences as 'causes' of disease, when they are nothing but the determining or concluding circumstances of the event or occurrence. Regarded as a manifestation of some pathological condition, acute illness compels us to look beyond mere phenomena to processes. and beyond processes to causes proper, such as the germs or poisons of tuberculosis, gout, alcoholism, and syphilis. A man of forty-five is found in urgent respiratory distress from acute laryngitis after a journey by rail. He is said to have acute laryngitis from 'cold and fatigue.' But it is not so—he is suffering from old-standing syphilis of the larynx with acute edema, which has been excited by these unfavorable influences. It might not have readily occurred to a practitioner called urgently to him to give him relief—if necessary by tracheotomy—that he had to deal with a case of specific disease, and that specific measures, in part at least, were the proper treatment for him."

THE ADMINISTRATION OF QUININE IN PREGNANCY.

It will be remembered that some years ago the THERAPEUTIC GAZETTE published several expressions of opinion from active obstetricians as to the value of quinine as an oxytocic, and concerning its safety when administered to patients who are pregnant. It will also be remembered that a good many practitioners believe that this drug, if administered in full dose, is capable of producing abortion, whereas others claim that where abortion follows its use the real cause is the malarial paroxysm from which the patient suffered. We therefore note with some interest a paper published in *La Clinica Obstetrica* for April, 1902, in which Maggi reports twenty cases in which quinine was administered freely to preg-

nant women without in any instance producing abortion. He believes that it should always be given when malarial fever affects such patients, and that the danger from the malarial infection is far greater than the danger from the quinine. Indeed, where quinine was given to pregnant women suffering from malarial fever, it was noted that the infants were unusually healthy and robust. In the same journal for June, Betti indorses this view of Maggi, and agrees that quinine should always be given to pregnant women suffering from malarial infection, since by its use both the fetus and the mother are protected, and their general health improved.

INJURIOUS RENAL MOBILITY.

Under this title, which is tersely characterized as "nephrospasis," and which, in so far as this designates a pathological condition, is greatly to be preferred to either movable kidney or nephroptosis, Bonney discusses at length, in the *Edinburgh Medical Journal,* vol. xii, No. 6, the methods of examining for kidney mobility or displacement, the classes of abnormal renal mobility, the gynecological importance of this condition, and its particular treatment.

Even to students of this subject the astonishing discrepancy of statements on the part of men of experience, usually gynecologists, in relation to the percentage of unnaturally movable kidneys, is most striking.

Thus Edebohls, who cannot be accused of lacking in surgical enthusiasm, found 90 movable kidneys in 500 cases subject to examination without special reference to this organ. Madsen found 60 cases in 100 examinations, Senator one case in 171 examinations, and Hilbert 1 case in 100 examinations. Morris makes a statement to the effect that seven to ten per cent of all women have abnormally movable kidneys; this, though more conservative than that of the more progressive gynecologists, strikes the general surgeon as an estimate of renal morbidity far too high.

A conception of what constitutes abnormal mobility and of the method of palpating the kidney influences the judgment of the individual physician. Probably the best method of examination is that described by Glenard. The patient is placed flat on the back with the thighs flexed, and a slight lateral bending of the body toward the side to be examined. The fingers of the surgeon are placed over the twelfth rib behind, whilst the thumb gently grasps the anterior parietes immediately below the costal margin. The patient being told to breathe quietly, the loin is gently compressed until the thumb can feel the anterior surface of the quadratus lumborum, whilst internally its tip rests against the ridge formed by the spine and psoas muscle. The patient is told to breathe deeply and quietly, the compression of the loin being maintained. With the descent of the diaphragm the lower pole of the kidney is projected against the barrier formed by the approximated fingers and thumb. After the examiner clearly identifies the push of the kidney, the patient is told to take a deep inspiration, and as the kidney descends the thumb is slightly raised, when the organ then passes either wholly or partly within its grasp. At the height of inspiration, the thumb with a sweeping movement upward sharply compresses the loin against the fingers behind, thus "nipping" the kidney. If the lower end of the organ be so nipped the kidney recedes upward under the shelter of the ribs, and cannot be arrested in the loin. This is the first degree of renal mobility.

If the organ be caught exactly at its middle, it can be held so in the loin, though this causes pain. This is the second degree of renal mobility.

If the upper end be grasped the kidney is forced downward, and the compression of the loin prevents the respiratory return of the organ. This is the third degree of renal mobility.

The standing position should always be adopted after the examination in the horizontal position, the patient leaning slightly forward and toward the side to be examined.

There is no consensus of opinion as to what constitutes abnormal mobility of the kidney, though all agree that abnormal mobility is not necessarily injurious, at least it is not always attended by symptoms.

Bonney finds, as the result of the syste-

matic examination of 100 consecutive patients, that in but 9 did he fail to feel the right kidney, in 41 the left kidney. Both kidneys exhibited the third degree of mobility in 9 cases, the right kidney alone in 40 cases.

He classifies the cases of abnormal renal mobility under three heads: (1) Those in which the condition is solely one of exaggerated diaphragmatic movement. Expiratory return is present and inward rotation absent. These cases give rise to no symptoms. (2) Those in which the diaphragmatic attachments of the perinephric structures are relaxed or gone, with consequent failure of respiratory return, but as the perinephric and retroperitoneal fat still continues to support the organ from below, inward rotation is not present. These cases cause no symptoms, or those which are very slight. (3) Those cases in which, from loss of both its upper and its lower supports, the kidney drags directly upon its pedicle, as shown by inward rotation and absence of respiratory return. Such cases are always accompanied by symptoms, and it is to them that the expression "injurious renal mobility" peculiarly belongs.

The earliest and only constant symptom of an injuriously movable kidney is a dull, aching pain in the back, and this may be the only symptom. This pain is placed at the level of the upper lumbar vertebra, and radiates transversely around the waist on the side corresponding with that of the offending organ. It may be radiated downward along the outer half of the abdomen and thigh. This pain remits irregularly, and is relieved by recumbency, hence it usually comes on during the day, the patient feeling well in the morning on getting up. There may be violent attacks of spasmodic pain due to renal compression.

Drugs are, of course, useless. Purgatives are of some value, since the pain is always accentuated by constipation. Diet and hygiene, which increase the body fat, are serviceable, since thus the perirenal support is increased.

A properly fitting belt can be of the greatest service, and may be curative; it must be fitted as carefully as a truss, and should always be applied in the recumbent posture. The belt should grasp the loin in front of the abdomen, and should be provided with an elastic band, sloping from behind downward and forward and fastening in front with a buckle, thus imitating by its compressive action the thumb and fingers of the examining surgeon. In all cases not relieved by the belt nephropexy is indicated.

This cannot be expected to give absolute relief, since it does not restore the organ to its normal condition of free mobility, but simply fixes it in the place it should occupy. In neurotic patients there often develops a neuralgic condition of the scar, or disturbed sensations incident to division or accidental ligature of the last dorsal nerve, which cause much more suffering than the condition for which the operation was undertaken.

There is, moreover, a distinct mortality in nephropexy, which even though small should lead the surgeon to suggest conservative measures rather than to insist upon a somewhat formidable operation.

SIMULATION OF INTESTINAL OBSTRUCTION.

Though it is true that no surgical affection to which the suffering human is subject is characterized by more conspicuous and painful symptoms than those produced by acute mechanical intestinal obstruction, it is none the less true, and this will be corroborated by the experience of every surgeon, that this condition is so closely simulated by other lesions that the diagnosis is at best difficult and at times impossible.

Bowlby *(British Medical Journal,* Jan. 3, 1903) devotes a paper to the discussion of various pathological conditions which may simulate acute mechanical intestinal obstruction, noting that peritonitis is the common cause of diagnostic error; one of little moment, however, since the latter condition usually calls for surgical intervention quite as urgently as does obstruction from other causes, and since an internal strangulation usually becomes complicated and obscured by a rapidly developing peritonitis. Renal and biliary colic are also regarded as affections often mistaken for obstruction; nor are the means of differentiation very clearly expressed, though the seat of pain, its radiation, the absence of distinct intermission,

and the position of tenderness are usually characteristic; nor is there in the early stages of the two affections the exaggerated peristalsis commonly noted in obstruction. The distinction of gangrene incident to acute embolic occlusion of the superior mesenteric artery from obstruction seems scarcely possible from a study of the history of these cases, though the passage of decomposed blood and evidence of valvular lesion and of emboli elsewhere would be suggestive. Operation is of course futile, but the ante-mortem diagnosis can scarcely be made in any other way. The absence of agonizing pain and of systemic shock should differentiate acute obstruction even from the most obstinate cases of functional constipation.

Acute enteritis may cause severe abdominal pain, vomiting, and tympany if associated with obstinate constipation, and may closely simulate real obstruction. A method of distinguishing between the two conditions is not given by Bowlby, who after a very general review of the subject of acute obstruction expresses himself as absolutely opposed to mere exploratory incision, and to the creed that such operations are without risk. Indeed, he regards such sayings as dictated largely by ignorance. He somewhat naively recommends that the most careful consideration of all symptoms should be given, and an attempt be made to arrive as nearly as possible at a diagnosis before deciding upon any line of treatment.

In doubtful cases where it is decided to open the abdomen in order to seek for a supposed mechanical obstruction, this should be done in the middle line below the umbilicus, because most of the causes of obstruction are to be found in the lower half of the abdomen. Without allowing the intestine to escape the right iliac region is examined, and from there exploration is continued toward the umbilicus. Then the left iliac region is searched. If no cause can be discovered, a coil of the distended intestine is opened and sutured to the skin, or if necessary the distended bowel is taken out of the abdomen altogether, and is emptied and sutured.

The observations made by Bowlby as to the danger of exploratory operations in the presence of acute intestinal obstruction, with its accompanying tympany, are in the main correct. If the patient has not been properly prepared for operation, the bowels prolapse as soon as the abdominal walls are opened, and the site of obstruction may be extremely difficult to find. None the less, when the diagnosis is fairly well formulated no other procedure is justifiable. His means of differential diagnosis are far from satisfactory, nor has he, in his lecture, even covered the general outline of the affections which so closely simulate acute intestinal obstruction as to make a diagnosis difficult or impossible. Thus the reflex abdominal crises of ataxia and of nephritis have deceived the elect. The profuse vomiting of gastric dilatation, accompanied by pain and constipation, has proven most misleading. The abdominal symptoms of infections of the thorax have more than once led to operation. Nor does it seem wise to insist upon a clinical distinction between mechanical obstruction and that incident to peritonitis, since this suggests a difference in treatment, and since acute internal mechanical obstruction always leads to peritonitis, when the symptoms of the two conditions are merged. By the time acute obstruction comes under observation there is developed at least a local peritonitis, but whether this be present or absent, whether the condition be attended by inflammation alone or inflammation associated with some other form of mechanical blocking, the proper treatment is by operation.

Reports on Therapeutic Progress

SUSPENSION IN TABES DORSALIS.

HAROLD MOYER still believes in the usefulness of this plan of treatment. He says the cases in which it has proven most useful are the moderately progressive cases in which the lightning pains and crises are marked. Under suspension there is often a marked improvement in these symptoms, the ataxia of the lower extremities improves, and the patients are better able to walk and they suffer less pain.

It would be difficult to say how many patients he has suspended in the last ten years, but quite one-third of the tabetics

that have come under personal observation, both in public and private practice, have been treated in this way. The suspensions are made with the utmost care. The apparatus is adjusted, and with the patient in the upright position, extension by the head and arms is carefully made. At first little more than the head is lifted; this is to accustom the patient to the process. After one or two trials, if there are no contraindications, the patient is finally lifted so that the feet clear the ground.

The length of suspension depends on the condition of the patient. While the procedure is being carried out the pulse and expression of the patient should be carefully observed, and the first signs of fatigue should be the signal for lowering the patient. As a rule, suspension should rarely exceed three minutes. The heavier the patient, the less the length of time, but generally speaking the most benefit is derived by the heavy patients. In case of men weighing less than 140 pounds it is well to attach a weight to the feet, and in this way increase the degree of extension.

There has been much discussion as to how suspension favorably influences these cases. That there is an elongation of the spinal column is easily ascertained by driving a pin into the sacrum and another into the vertebral prominence. When the patient is suspended, it will be noted that the distance between these two points is increased about half an inch. It varies somewhat in different patients.

How suspension improves the condition of the patient is an unsolved problem. It is not unreasonable to suppose that it favorably influences the circulation in the spinal canal, relieving venous stasis and favoring the absorption of inflammatory exudate.

The following conclusions are justified in estimating the value of suspension in the treatment of tabes in Moyer's opinion:

1. It is not a cure, but a valuable adjuvant.

2. It is useful in about thirty per cent of cases.

3. Rapidly progressing or quite stationary cases receive but little benefit.

4. Cases of moderate severity, where the disease is largely confined to the lumbar enlargement, receive the most benefit.

5. When the cervical enlargement is most involved, little can be hoped for from this method.

6. Trial in a given case will alone demonstrate if the method is of value, and great care must be exercised in beginning the treatment, the effect of each suspension on the condition of the patient being carefully noted.—*Medicine,* November, 1902.

THE TREATMENT OF ATONIC MOTOR INSUFFICIENCY AND DILATATION OF THE STOMACH.

SAUNDBY, of Birmingham, in the *British Medical Journal* of November 29, 1902, says that the rational treatment of atonic dilatation of the stomach is for the most part that of the neurasthenic condition upon which it depends. In cases which resist tonic treatment, a modified Weir-Mitchell course is indispensable. Such patients should go to bed for three to six weeks, and have general massage to prevent muscular waste, with the object of strengthening the abdominal walls. Faradism may be also tried as a tonic to the muscles. Intragastric electrization by both the faradic and constant currents with Max Einhorn's electrode has not been followed by any benefit; and according to Goldschmidt (quoted by Moritz) electrization of the interior of the stomach neither influences the rapidity with which it empties itself, nor produces contraction of its walls. Every case upon going to bed is put upon an ounce of milk every hour diluted with barley water, soda water, or lime water, and no other food is allowed so long as pain continues. If, as is usually the case, no pain is felt in the recumbent position, the milk is increased by one ounce hourly on successive days until the maximum of four ounces is reached. Should all go well, to this may be added four ounces of minced chicken twice a day, with a very small slice of rusk or toast. After two or three days minced mutton may be given as a variation with the addition of a little mashed potato and custard pudding for dinner, and cocoa and rusk for breakfast instead of part of the milk. So by degrees the patient is brought round to a normal diet of three or four meals daily. When this result is attained the patient

is allowed to get up, and if still able to eat the same food in comfort, is sent home, or better, is ordered away to complete the cure by change of air and scene.

All cases do not proceed so smoothly. In some the tongue may remain foul and pain continue even after taking nothing but diluted milk. Under these circumstances it may be necessary to wash out the stomach every night by means of a siphon tube. This time seems preferable to the morning. The usual argument in favor of the latter course is that it leaves a longer time for the digestion of food, but if the stomach does not empty itself some acid gastric contents remain far into the night in contact with the stomach walls, which must tend to keep up and even aggravate any inflammatory condition present, while on the other hand, if the stomach is washed out at bedtime with warm water this source of irritation is removed.

Sometimes milk diet fails, and then recourse must be had to minced, lightly cooked mutton, which hospital patients generally refuse without the concession of a small piece of toast or rusk to be eaten at the same time. On this diet the patients get three meals a day of four ounces of minced mutton, the quantity being increased to six ounces if the smaller amount is insufficient to satisfy hunger. The author has repeatedly seen the tongue become clean, and dyspeptic symptoms, which had persisted upon diluted milk, pass away under this regimen, and has, therefore, no doubt of its value or hesitation in recommending its use.

The only routine drug treatment employed by the author is something to prevent or overcome constipation, which is frequently troublesome, even in those patients whose bowels were quite regular when they were going about. In hospital he usually orders the mistura magnesiæ sulphatis cum ferro three times a day, as such patients like to have a bottle to take regularly; but in private practice he is content to give a capsule of cascara or some similar remedy every night at bedtime. If the tongue is foul he gives one or two doses of calomel (1 grain), or blue pill (5 grains), with either of the following mixtures: Bismuth carb., gr. 10; sodii bicarb., gr. 10; pulv. rhei, gr. 2; mucilage tragacanthi, m. 15;; aq. menthæ pip., q. s. ad fl. oz. 1. Or, sodii bicarb., gr. 10; tinct. rhei, m. 15; ext. cascar. fl., m. 10; tinct. nucis vom., m. 10; tinct. zingiberi fort., m. 5; inf. gentianæ co., q. s. ad fl. oz. 1. Sig.: to be taken immediately before each meal.

Where the disease is not of long standing we should try what can be done by milder measures, and it is often sufficient for such patients to lie down for half an hour after each meal and to avoid fatigue. This advice should be supplemented by such a prescription as the following: Acid. nitrohydrochl. dil., m. 15; tinct. nucis vom., m. 10; ext. cascar. fl., m. 10; tinct. zingiberi fort., m. 5; inf. gentianæ co., ad fl. oz. 1. Sig.: to be taken immediately after each meal.

The author does not diet these lighter cases unless there is good reason to do so, such as evidence of gastritis; in that case he treats them by eliminating from the diet such articles of food as cause irritation, including fats, uncooked vegetable food of all kinds, coarse tea, and the stronger alcoholic drinks. When there is no gastritis he makes no restrictions, but allows them to eat what they can.

He has said nothing about assisting gastric digestion by the various remedies which modern pharmacy has proposed. If he does not accept all these methods it is because some appear to be founded upon erroneous physiological notions or upon misconceptions of the capabilities of drugs. Discomfort after food depends ultimately upon want of motor activity in the stomach, and those who never suffer from dyspepsia are vigorous persons whose stomach walls contract actively and soon discharge into the duodenum whatever they may have swallowed. Purgative remedies relieve indigestion by exciting this action, and it is believed that nux vomica and caffeine, the latter in the form of black coffee, act in the same way. Test breakfasts show that deficiency of hydrochloric acid is common, but it is impossible to give a sufficiently large dose by the mouth to compensate for this defect. Some have attempted to do so by giving 30 drops of dilute hydrochloric acid every twenty minutes for two hours after each meal, but few patients would swallow so much medicine. The use of pepsin is not supported by the results of stomach examination, as it is extremely

rare to find pepsin absent, except where hydrochloric acid is also wanting. Papain, if it were a trustworthy drug, would be better, but unfortunately it does not retain its proteolytic properties—at least, in the writer's experience he has not been able to obtain commercial papain which was of any digestive value. Pancreatin fails probably because although the hydrochloric acid present is insufficient to promote good peptic digestion, it is enough to inhibit the action of trypsin. No reason exists for administering diastatic ferments in this disorder, as in the writer's cases the salivary diastase was always active.

In connection with the question of gastric digestion, it should not be forgotten that the intestinal digestion is quite capable of supplementing any deficiencies of the stomach, for not only have experiments upon animals shown that nutrition can go on perfectly well in the absence of a stomach, but Schlatter's case and others have proved that all the functions of digestion and assimilation may proceed perfectly after the entire stomach has been excised.

A COMPARATIVE STUDY OF THE VALUE OF METHYLENE BLUE AND QUININE IN THE TREATMENT OF MALARIAL FEVER.

In the MEDICAL NEWS of December 6, 1902, MOORE and ALLISON state that in studying the effects of these substances a distinction must be made between methyl blue, the dye, and methylene blue, the medicinal agent. Pure medicinal methylene blue must be used. By getting the drug from a reliable manufacturer you are practically assured that an uncontaminated article is given.

In Foster's Practical Therapeutics, vol. I, we have a simple test. Make a solution of methylene blue. The meniscus is said to be of a greenish instead of a blue color, while with methyl blue there is a blue color.

By adding sodium hydroxide you get a purplish-red color with methyl blue, while methylene blue turns a deep violet.

It is important to be able to recognize the difference, for toxic effects are reported in the use of methyl blue.

Moore and Allison adopted as the dose of methylene blue 20 grains per day, divided into four capsules of five grains each.

Powdered nutmeg should be administered along with methylene blue to lessen the tendency to strangury. Moore and Allison gave two grains of powdered nutmeg with each five grains of methylene blue. Thayer gives one and one-half grains of methylene blue with an equal amount of powdered nutmeg, five times per day. This dosage Moore and Allison think is too small.

An objection has been made in some quarters that patients did not like to take the blue, but the authors found not the slightest difficulty along this line.

Some authorities begin the administration five or six hours in advance of the expected paroxysm, but in the authors' cases the drug was given after meals three times a day. It was given in ordinary gelatin capsules and followed by a large draught of water.

Guttman and Erlich gave seven and one-half grains six hours in advance of the expected attack, and following the attack one and one-half grains five times daily.

Some authorities recommend its use hypodermically, but the authors have not considered it advisable to so use it.

The drug is supposed to be a parasiticide and antiperiodic. Its power to stain the malarial parasite is said to have led to its use as an antiperiodic. When used directly upon the parasite in a weak solution it at first checks their movements, later killing them and then staining them. These writers have not succeeded in staining the living parasite either by administering the drug by the mouth or by mixing the blue directly with the blood in a normal saline solution. In the former the parasites showed some activity, but in the latter instance, where mixed directly with the blood, they were observed to lose their movement as the stain showed itself.

The secretions when this drug is used in a very short time became tinged with blue. The conjunctivæ may be blue, probably due to the staining of the tears. We doubt that any living and healthy tissue or protoplasm will take the stain in sufficient quantity to manifest itself. In a number of instances, however, what were taken to be methylene blue granules were noted in the leucocytes.

The drug is eliminated by all of the secretions. Lemanski and Mann detected it in the saliva forty minutes after administering it by the mouth, and its rapid elimination by the kidneys has led to its use as a diuretic. The observations of the authors did not cover this phase of the subject.

The analgesic qualities of the drug the authors have several times noted.

The conclusions reached by Drs. Moore and Allison do not differ materially from those of Thayer and others who have tried methylene blue.

1. Methylene blue will destroy malarial parasites in many cases, but is less certain than quinine.

2. Methylene blue is probably most valuable in chronic cases, but has no advantage over quinine.

3. The effects of methylene blue are ordinarily more unpleasant than quinine.

4. It is useful in cases that cannot take quinine on account of some idiosyncrasy to it. Its use in cases of pregnancy is undetermined.

5. It is probably valuable in treating hematuric and hemoglobinuric fevers on account of its diuretic action; this has yet to be determined. The authors have had no chance to test its use in such cases.

6. It is believed that quinine is quicker and much more certain and more reliable than methylene blue.

CATAPHORESIS IN THE TREATMENT OF GOUT, RHEUMATISM, AND RHEUMATIC ARTHRITIS.

To the *Edinburgh Medical Journal* for December, 1902, BEGG contributes his results in using this plan of treatment. He employs currents of as much as 25 to 30 milliamperes, using at first stabile applications and afterward labile ones.

It must be at once clear that this plan can only do good in certain stages of the disease. In gout it is clearly asking too much to expect it to dissolve and remove extensive and old chalky deposits, but any deposit, however slight, forms a nucleus for the precipitation of fresh insoluble material, and, although this may be continually going on to a slight extent, it must be copiously and rapidly precipitated with each fresh attack of inflammation. This is the time when we can do good, both by soothing the pain and by the action of the positive electricity, checking the inflammatory process, while all the time it is driving a stream of potassium bicarbonate into the tissues of the joint.

Dr. Luff has shown by experiment that the potash salts hinder the precipitation of the sodium biurate from the unstable sodium quadriurate circulating in the blood. In applying it thus direct to the joint we do our best to keep the precipitation from taking place, and give the vessels a chance of removing it. Even in old and extensive deposits it may help matters. A recent case supplied the author will prove this. A gentleman arrived for treatment at the end of a long, lingering attack of gout; feet and hands were extensively involved, and many joints the seats of large deposits. The distal phalangeal joint of one finger was so distended, the skin over it so discolored and stretched, that it looked impossible to prevent its giving way. Yet there was improvement after the first sitting, and at the end of a week all danger of that annoying accident was at an end. Some removal of deposit must to all appearance have taken place, as well as cessation of inflammation.

In rheumatoid arthritis, when once bony outgrowths have deformed the joint, or dislocations have taken place, we cannot expect to do much good. Not with our present views as to the nature and cause of the disease can it be seen how the alkali can be of much service; but the writer has proved to his own and to his patients' satisfaction that this method does great good in the earlier stages both in reducing the swelling and soothing the pain. The earlier it is used the better the result. The author ascribes the good to the action of the positive electricity and the electric massage. He has noticed that as the swelling goes down the pain in the joint may for a time be increased. It was in this class of cases he had patients willing to risk all the damage from the negative electrode, had it been necessary, in order to obtain again the good results to the joints.

In rheumatic arthritis, in addition to the soothing and massage effects, there is a probability of the alkali also being useful, and the method can help us at any stage of the disease.

THE GAS EVOLVED IN THE DECOMPOSITION OF HYDROGEN DIOXIDE BY PUS.

MARSHALL contributes to the *University of Pennsylvania Medical Bulletin* for December, 1902, his results from a research on this topic.

It appears from the experiments of the author that the constituent of the blood that causes the decomposition of hydrogen dioxide is globulin.

No coagulating action of hydrogen dioxide upon any of the constituents of pus or of defibrinated horse's blood was observed. Possibly the idea that it possesses coagulating action upon pus arises from the fact that when it is used to clean an abscess it removes, by its mechanical action, from the walls of the cavity threads of necrotic tissue, which, being disseminated in the resulting liquid, might lead one to believe consisted of coaguli of albuminous bodies which had previously been in solution in the pus.

It seemed possible that the bactericidal action of hydrogen dioxide might be due to its penetrating the cell membrane of the bacterium, and coming in contact with some body contained in the bacterium, which possessed the property of decomposing hydrogen dioxide, liberated the gas, which by its physical action ruptured the membrane, thus destroying the vitality of the bacterium; but experiments made with the bacillus megatherium, bacillus anthracis, and the yeast cell did not appear to substantiate the thought.

Von Bruns, in recommending the use of hydrogen dioxide in the treatment of infected wounds, attributes its action as being partly physical and partly chemical. It certainly has a physical action in mechanically loosening and disintegrating necrotic matter, and probably also a chemical action, due to the liberation of oxygen in the nascent state, in the production from noxious substances of new compounds which may be innocuous in character. Use is made of its physical action as first suggested by Crile (Browning) in mechanically removing the particles of carbon in gunpowder burns, which, after the healing of the wound, give a bluish-black appearance to the skin. It might also be found useful in removing the particles of coal which produce the bluish-black stains in the wounds of workers in coal. It is unlikely that absorption into the circulation of a quantity of the solution sufficient to produce gas emboli occurs when it is employed in the treatment of wounds and cavities, provided openings exist for the free escape of the gas, so that no pressure is exerted on the liquid.

THE TREATMENT OF PULMONARY SYPHILIS SIMULATING PULMONARY TUBERCULOSIS.

The *Medical Record* of December 13, 1902, contains an article by BERG on this subject. He believes that true syphilis of the lung occurs without associated tuberculosis, and advises, the diagnosis having been made, or even a probable diagnosis arrived at, that the patient should be placed upon antisyphilitic treatment.

It is well to remember here that the success of competent antisyphilitic treatment in cases of pulmonary syphilis will be an important factor in the confirmation of the diagnosis. The treatment, on the other hand, applied to non-syphilitic pulmonary cases is apt to aggravate the symptoms and course of the disease. The only cases of non-syphilitic origin that could possibly be improved by an iodide and mercurial treatment are cases of simple fibroid phthisis, and in such cases the differentiation might safely rest upon the presence or absence of syphilitic phenomena. The author is accustomed to put these patients upon large doses of iodides, beginning with 20 grains of the iodide of sodium, or 20 drops of the saturated solution of this drug, three times a day. He increases by two grains daily to the point of tolerance. Such iodides may be increased to 100 grains t. i. d. The drug should be given after meals and largely diluted in milk. For 100 grains a large goblet of milk is required; smaller doses require a wineglassful and upward.

This iodide treatment is combined with the administration of mercury by the mouth, generally 1-30 of a grain of bichloride, t. i. d., given immediately after the iodide. In addition a drachm of unguentum hydrargyri should be rubbed into the skin daily. Nothnagel and Rossbach showed many years ago that the effect of the inunctions of mercury is due to the inhalation of the vapor of mercury which passes under the clothing of the patient to his mouth, and is inhaled with the inspired

air and absorbed through the walls of the bronchi and alveoli. They did not consider that the mercury was absorbed through the skin in any considerable percentage. This fact renders the mercury in these pulmonary syphilitic cases of greater and more positive value.

This communication of the author is intended as a clinical study of a class of cases which he believes, from personal experience, to be far more frequent than is generally conceded—cases which resemble, clinically, pulmonary tuberculosis, a disease in which the recognized therapy is of uncertain efficacy.

To overlook cases of pulmonary syphilis owing to their clinical resemblance to pulmonary tuberculosis is an error attended by vast injustice to the individual who is the victim of it. On the other hand, to have mistaken a case of pulmonary tuberculosis and placed it upon antisyphilitic treatment for syphilis is an error which can be remedied in time when the treatment is found inefficacious. Indeed, ten days of antisyphilitic treatment will show improvement in the syphilitic cases, and an increase in the cough and other symptoms in the tuberculous cases. If this communication, and others on the same subject, will result in directing the attention of the general physician to the possibility of syphilis as a factor in some of his phthisical cases, so-called, the study of the subject will advance more rapidly, and an important group of cases will be recognized which are now frequently overlooked.

THE TREATMENT OF AORTIC REGURGITATION.

To *Treatment* for November, 1902, SYERS contributes a paper upon this disease, and in conclusion adds a few words on the treatment of cases of aortic reflux. In young and otherwise healthy people there is no heart lesion which nature more rapidly and more perfectly amends. This she does, of course, not by the repair of the damaged cusps, but by the immediate hypertrophy of the left ventricle. The ease and swiftness with which this change in the wall of the ventricle takes place is really surprising, and can be well studied as regards its evolution in these cases of acute rheumatism in which the aortic lesion has set in under observation. In a few weeks' time nature will have so strengthened the left ventricle that the evil effects of the leak through the valves are practically annulled. This being so, it cannot be too insistently urged that in cases in which the compensation is perfect the maxim "let well alone" should be the guiding principle of treatment. Unfortunately, this is too often forgotten. Digitalis, caffeine, strophanthus, convallaria, strychnine, *et hoc genus omne,* are only too often administered because there is a murmur. When will it be recognized that the great aim of examination of the heart is to ascertain the state of its cavities and the power of its walls? So long as the discovery of murmurs is the end, aim, and object of heart examination, so long, it is feared, will unnecessary and injurious treatment and meddling interference lead to the results which are only too often observed at the present time.

Digitalis and other drugs of the class are nothing more nor less than most potent workers of evil in compensated heart lesions of all kinds, and in none more so than in aortic regurgitation. The already forcible contraction of the ventricle is rendered still more powerful, the strain on the arteries is increased, and the frequent contemporary presence of atheroma of these vessels may lead to the production of fatal cerebral hemorrhage. By the increased driving power of the ventricle, too, previously firmly adherent granulations may be swept away from the aortic cusps, and cerebral or peripheral embolism may be the result. Further, attacks of palpitation may be either excited or aggravated, and dyspeptic trouble, previously slight or absent, may be excited. And there is the further great danger of the heart being brought to a sudden and permanent arrest of action.

During the time, then, that compensation is good no drug treatment is indicated beyond that which may be desirable to amend gastric symptoms, which are so common in aortic disease, and to remove constipation.

The greatest care should also be taken to secure a regular healthy mode of life, in which outdoor exercise should be a prominent factor, alcohol and tobacco being entirely eschewed.

On no account should the patient be

allowed to indulge in the modern madness for "exercises," and rowing, running, and swimming should all be avoided. But common sense will surely dictate what is and what is not indicated for the management of such a condition, and above all things should fussiness, worrying about trifles in treatment, be shunned.

When compensation begins to fail, then, indeed, the drugs already alluded to have their use. But there is nothing special in the treatment of this stage of the malady. When symptoms of shortness of breath—almost invariably the earliest omen of evil in aortic disease—appear, it may be at once concluded that the mitral valve has yielded; in other words, the case has become one of mitral disease, and therefore requires the treatment suitable to that condition. Pain in the precordial region and down the arms, together with much anxiety, so often complained of, may be greatly relieved by the use of nitroglycerin, either in the form of tabellæ of the British Pharmacopœia or by one or two drops of the one-per-cent solution.

When aortic regurgitation is associated with atheroma, as is frequently the case in middle-aged subjects of the disease, iodide of potash or of soda may often be given with advantage, and the same treatment is, of course, indicated in those numerous instances in which the heart affection is closely connected with the presence of a syphilitic history.

THE TREATMENT OF PULMONARY TUBERCULOSIS WITH FORMIC ALDEHYDE, AND A DESCRIPTION OF AN INHALER FOR ITS PRACTICAL ADMINISTRATION.

In the *Philadelphia Medical Journal* of December 13, 1902, SHALLCROSS advises this plan of treatment, and says that the purpose of his report is to describe a form of inhaler which he has devised and has used in the treatment of his cases, and which he hopes will be of use to others in their application of formaldehyde as a remedy. It has also been used in a variety of other diseases of the respiratory apparatus with equally gratifying results, which will be reported upon later.

It consists of a wide-mouthed bottle, commonly known as a salt-mouth bottle, with a capacity of about one pint. This is closed by a tightly fitting cork perforated with two holes. Through one of these is passed a straight glass tube reaching within an inch or two of the bottom of the bottle, known as the inlet tube, and through the other is passed a shorter tube bent at an angle which opens just within the neck of the bottle. Over the outer extremity of this tube is pushed a piece of rubber tubing about two or three feet long, having attached to its other end the mouthpiece.

A piece of wire mosquito-netting, about fifteen or eighteen inches long by four or five inches wide, is prepared and covered on one side with cheese-cloth. The latter is cut a little wider than the wire gauze, so that its edges can be folded over and caught in the rough edges of the wire netting, which serves to hold it in place. Both are now rolled tightly together with the cheese-cloth on the outside, and placed inside the bottle. The width of this roll is determined by the height of the bottle measured from the bottom to its shoulder. When in place, the wire will naturally unfurl, occupying several turns in the bottle, and these should be separated one from the other so as to give a greater surface exposure to the liquid, which is poured upon it in sufficient amount just to moisten the gauze all over and leave a slight excess in the bottom of the bottle. This, as evaporation takes place, will be subsequently drawn up by capillary attraction. The mouthpiece is prepared from the rubber bulb which is supplied with the ordinary hand atomizer. One end of this is cut off with a pair of scissors and shaped to conform to the mouth.

The fluid which has given the most general satisfaction consists of equal parts of 40-per-cent commercial formaldehyde and 95-per-cent alcohol. Chloroform, creosote, oil of gaultheria, guaiacol, etc., may be added to this when desired. About 50 cubic centimeters, or twelve drachms, is sufficient to moisten the gauze and leave an excess. This will last for two or three months without the necessity of renewing. At the end of this time it is still strong, but the gauze will have become rusty and unsightly, requiring, for esthetic reasons at least, the renewal of both.

This inhaler has the following advantages, many of which are apparent at a glance: It dispenses with the trouble and

annoyance incident to the disintegration of formic aldehyde by heat from its aqueous solution. It requires no adjusting for two or three months after the apparatus is once set up. The patient can control the strength of vapor inhaled by manipulating the mouthpiece. In this way it is possible to exhibit the drug to the point of extreme tolerance without irritation, coughing, or other unpleasant symptoms. It is portable and can be used in the open air or indoors, or the excess fluid can be poured out and the inhaler packed in a trunk when traveling; in this way the gauze will retain sufficient moisture to last a week or two without recharging. It delivers the gas thoroughly mixed with pure air, and the efforts to use the inhaler cause the patient to breathe deeply, filling every available alveolus with its vapor. Other volatile drugs can be used along with it, excepting iodine, which will attack the iron wire. Finally, the trifling cost and readiness with which such a form of inhaler can be procured will be a consideration to poor patients.

The effects of this form of medication are apparent almost from the beginning of treatment. Used in this way formaldehyde is not an irritant, as is popularly stated, but a stimulant. The patients readily take to using it and enjoy its effects. It gives them employment and breathing exercises. It controls pyrexia by lessening the absorption of toxins, night sweats are relieved and nervous symptoms improve, cough is lessened, and the secretions become less purulent and more mucous. The writer's first patient, who had a daily rise of temperature to from 102° to 104°, was relieved on the second day after beginning the treatment. The temperature subsequently, throughout the course of the disease, remained nearly normal.

Method of using the inhaler: In addition to directions regarding the method of breathing, patients are directed to use the inhaler, in the aggregate, two or three hours each day, from fifteen to thirty minutes at a time. Each séance should be at regular intervals during the waking periods, and they are to use it on retiring and before arising in the morning.

As a therapeutic adjunct in the treatment of pulmonary tuberculosis formic aldehyde possesses certain distinct advantages:

It is a gaseous substance, having about the same specific gravity as air, with which it readily diffuses, and is soluble in water.

It is the most powerful chemical disinfectant known, and the nearest approach to a pulmonary antiseptic we have.

It is a stimulant, non-toxic, and does not irritate the respiratory tract when administered in the proper manner.

It lessens the absorption of toxins, reduces pyrexia, relieves nervous symptoms and night sweats, and sharpens the appetite.

Cough is lessened by its property to liquefy and render the secretions more fluid, and by relieving the irritation of the pharynx and larynx.

ENURESIS IN CHILDREN.

In the *Postgraduate* for December, 1902, SHEFFIELD has this to say of the treatment of this condition:

The treatment of enuresis must be based upon the attention to the etiological factors. It is, therefore, of greatest moment to systematically examine the patients for organic diseases and to endeavor to eliminate every symptom suspicious of organic disease. In absence of organic causes there is evidently a neurotic cause to be dealt with, and the treatment must be adopted accordingly. It is very important in all cases to instruct the patient (if old enough) not to abstain from micturition when called upon by nature to do so, and to train small children to void urine about every three hours, and not to permit them to withhold the urine for a longer period. This is very important, for it is often overdistention of the bladder and the allowing of urine to decompose for hours in the bladder that proves the primary cause of the consequent secondary etiological factors, such as atony or hyperesthesia of the bladder, presence of concretions, cystitis, etc. It is also advisable to encourage drinking of water in cases of enuresis due to concretions, cystitis, or gonorrhea, but to forbid it in other cases. The patient is not to be permitted to sleep on his back, and it is often of advantage to raise the foot of the bed in such a manner that the child's trunk and head lie deeper than the pelvis.

In enuresis due to atony a general constructive treatment is indicated. Plenty

of good nourishment, change of air, cold spinal douches, medicinal tonics, and electricity are usually effective in bringing about a cure. (A moderate galvanic current is usually best—one pole is applied to the symphysis or rectum, the other to the perineum.) The following mixture is often very serviceable:

℞ Ext. ergotæ fl., f℥iij;
Ext. rhus. tox. fl., f℥j.

M. Sig.: 5 to 10 drops every four to six hours to a child six years old.

In incontinence of urine associated with hyperesthesia of the collum vesicæ or spasm of the detrusors, an antispasmodic treatment is indicated, consisting of hot sitz-baths, avoidance of irritating food or drink, and the administration of either extract of belladonna or hyoscyamus. The author usually prescribes the following:

℞ Ext. hyoscyami, ℥ss;
Sodii bromidi, ℥j;
Aquæ anisi, f℥j;
Syrup. simplicis, q. s. f℥ij.

M. Sig.: One teaspoonful every four to six hours to a child six years old.

Counter-irritation by means of sinapisms over the lumbosacral regions often does well, and if everything fails, this class of cases can often be very rapidly cured by gradual dilatation of the posterior urethral canal.

THE NATURE, CAUSES, AND TREATMENT OF CARDIAC PAIN.

In the *Lancet* of November 29, 1902, Morison tells us that the drug treatment of angina pectoris is divisible into (1) the management of the paroxysm of cardiac pain, and (2) the medicinal treatment of the patient in the intervals between attacks.

The Treatment of the Paroxysm.—The mine once laid, be it in coronary, cardiac, or aortic lesion, the spark necessary to its explosion is, in a large number of cases, exaggerated blood-pressure, whether direct and propulsive from the heart, or indirect and obstructive from the peripheral arterial system. This is probably the case in all save the musculospasmodic and musculoparetic or syncopal cases. It follows that in most cases the regulation and moderation of blood-pressure are the primary objects which the physician has in view when he prescribes a medicinal agent to remove the injurious effects of excessive vascular pressure. Concurrently with these it may be also necessary on occasion that he should employ more direct analgesics, and in the final stage, if need be, one form or another of artificial respiration or cardiac stimulation, to which reference may now be made. Cardiac failure in angina pectoris being primary or due to vagal inhibition, the employment of Laborde's method of rhythmical tongue traction in combination with Sylvester's method of artificial respiration is indicated. In the profound and prolonged syncope observed in the status epilepticus the author has repeatedly found Laborde's method apparently very efficacious. Laborde's own explanation of the rationale of this procedure seems sufficient. He attributes its efficacy in great measure to the stimulation by tongue traction of the lingual fibers of the superior laryngeal branch of the vagus and to the cardiac and respiratory reflexes thus provoked. The combination of artificial respiration with tongue traction, which might be termed the Sylvester-Laborde method, and for which the coöperation of two persons is necessary, would most completely fulfil the indications in anginal syncope. But the direct heart stab of angina pectoris which has reached the final stage of cardiac inhibition will probably prove more hopeless of recovery than syncope from other causes. There is no valid reason, however, why perseverance should not occasionally be rewarded in these circumstances as well as in others in which such persistent efforts to restore animation have been successful.

The most powerful influence in counteracting the paroxysm of angina pectoris must be ascribed to the nitrites. Nitrite of amyl, the vasomotor influence of which was originally determined by Guthrie in 1859, was first used in the treatment of this disorder by Lauder Brunton in 1866. Whatever difference of opinion may be entertained regarding the physiological mechanism of angina pectoris, there can be none concerning the frequent efficacy of the nitrites in relieving cardiac pain. In 1879 Murrell enriched our therapeutic armory by using nitroglycerin in the treatment of angina pectoris, and Mathew Hay in 1883 used nitrite of sodium for

the same purpose. One of the best general accounts of "the pharmacological action and therapeutic uses of the nitrites and allied compounds" which has appeared in the English language is that given in his Oroonian Lectures by the late Dr. D. J. Leech, of Manchester. The scope of the present lectures by the author precludes a digression into the very interesting pharmacological and physiological phenomena revealed by a study of the effects upon the circulation of the nitrite group of medicinal agents, and the author refers those who wish to peruse a masterly treatment of the whole subject to the lectures of Dr. Leech, an observer whom medicine could ill spare. There are, however, some points in connection with the comparative celerity with which these drugs act and the length of time for which their effects last which are of practical moment in the treatment of angina pectoris. These points have been well summarized by Dr. Leech in the following words:

"Changes in arterial tension are not often indicated by subjective phenomena, and their extent and duration can only be measured by the sphygmograph. With this instrument the author has tried by means of tracings taken frequently to estimate the time at which it reaches its lowest point and its duration. The influence of amyl nitrite on the pulse commences a few seconds after inhalation. The tension is reduced to its lowest point in from fifty to sixty seconds, and remains extremely low for thirty or forty seconds, the pulse waves being reduced in size and sometimes irregular. Then it rises again, occasionally suddenly, and in from a minute and a half to two minutes the pulse is only a little lower in tension than it was before the inhalation. The slight lowering may continue for several minutes. Isobutyl and isopropyl nitrites when inhaled act almost like amyl nitrite. Sir B. W. Richardson, to whom we are so much indebted for knowledge concerning amyl nitrite, has drawn attention to the fact that when it is taken internally its effects are much slighter though more prolonged than when inhaled. Instead of the tension falling at once and recovering in two minutes, it falls gradually for usually twenty to twenty-five minutes, remains low a short time, and then rises to its normal height an hour to an hour and a half after the dose has been taken. Because amyl nitrite is such a powerful agent wher inhaled, one drop is regarded as the proper dose, but this is a mistake; from three to five minutes may be required to produce about the same effect as that which follows two grains of sodium nitrite. A small dose of sodium nitrite (two grains) distinctly affects the pulse in two or three minutes; the point of lowest tension is usually reached in from eight to forty minutes, and distinct influence on tension ceases in one to three hours. Ethyl nitrite has much the same effect, and on the whole lasts as short a time."

The sphygmogram in Dr. Leech's third lecture illustrates some of these points. The author also showed a tracing from the pulse of the patient suffering from angina which illustrates the effect on the pulse of the nitrites in an interval between attacks and during the attack. They were published in *Treatment* of October 14, 1897.

As a rapid action of the drug is desirable during an attack of pain, the inhalation of the nitrite or the internal administration of trinitrin in a fluid form is indicated. Of these the method by inhalation is more prompt in action and is to be preferred in the circumstances. Nor need we fear the use of more rather than less than the conventional dose of five minims of nitrite of amyl, for it has, accidentally and intentionally, been demonstrated over and over again that although a very small quantity of this drug has a physiological and therapeutic effect, very large quantities have been inhaled and used without persistently ill effect. Even the one-per-cent solution of nitroglycerin may be taken by some patients in considerable doses, though others can only tolerate small doses. Dr. Murrell mentions a case which took 100 minims of the solution as a dose, while another suffered severely from half a minim. The author generally uses two to five minims, and the only inconvenient consequence noted has been some degree of headache. The dioxidation of the blood under the influence of the nitrites may be disregarded for therapeutic purposes, as the effect of these drugs is very evanescent. But gratifying as is the result of the use of the nitrites, in many cases of angina they do not by any means always succeed in relieving the patient. The

agony may continue notwithstanding their free use. In these circumstances, placed as we are between the possibility of witnessing a fatal inhibition or syncope and our own fears lest we should use too powerful an analgesic, we must run some risks if necessary to arrest an almost certain catastrophe if the pain should continue. Our sheet-anchors then are chloroform, with or without the subsequent or combined use of ether, and the hypodermic injection of morphine.

RESUSCITATION IN SYNCOPE DUE TO ANESTHETICS AND IN OTHER CONDITIONS BY RHYTHMICAL COMPRESSIONS OF THE HEART.

In 1874 Schiff showed that dogs apparently killed by chloroform might be resuscitated by rhythmical compression of the exposed heart. In 1899 Prus independently discovered that dogs apparently killed by asphyxia, chloroform intoxication, or electricity might be resuscitated in this manner. Opportunity has occurred of applying this method to man in a case of suicide. Though two hours had elapsed since apparent death a few flickering contractions of the heart were obtained. In the *Hospitalstidende,* 1900, page 1217, an extraordinary and unique case was published, in which, after stoppage of respiration and pulse during the administration of chloroform, and failure of ordinary methods of resuscitation, the heart was exposed, rhythmic compression was performed, and after a short time spontaneous contractions were evoked. Perflation of the lungs was simultaneously performed. The cardiac movements gradually increased, and after half an hour feeble spontaneous respiration began. After three hours the patient was breathing deeply, then respiration again ceased. Artificial respiration was maintained for eight hours until the heart ceased to beat. A complete account of this case has been published.

The *Revue de Chirurgie* for October, 1902, contains an interesting review of the whole subject by Dr. Maurice Boureau. He finds that rhythmical compression of the heart has been employed in twelve cases, never with final success. M. Tuffier has recorded the following case: He happened to be near when a man died suddenly on the fifth day of an attack of appendicitis, apparently from embolism. Not more than two or three minutes had elapsed when he examined the patient. The body was already flaccid, the pupils were dilated, respiration had stopped, and the heart showed no signs of movement. Having tried all ordinary methods suitable in such a case, M. Tuffier rapidly made an incision in the third left intercostal space, and pressing on the pericardium with the index-finger rhythmically compressed the ventricular region for one or two minutes. The heart first undulated irregularly and then contracted definitely. The pulse reappeared, deep respirations took place, the eyes opened, and the pupils contracted. The wound was covered with an antiseptic pad. The pulse failed again, and the circulation was again established by the same means for some minutes, but it then ceased in spite of all efforts.

Until the present year surgeons have reached the heart by resecting the fifth and sixth ribs and opening both pleura and pericardium, thus necessarily creating pneumothorax. But in 1902 Porrier, following a method recommended by Mauclaire, adopted the *voie diaphragmatique,* thus avoiding the production of pneumothorax. An incision four or five centimeters long is made through the diaphragm. It begins at the middle of the concavity of the diaphragm and is directed a little obliquely from right to left toward, but not as far as, the apex of the heart. In two cases this method has been employed without success. Dr. Boureau thinks that Sylvester's method of artificial respiration and Laborde's method of rhythmical traction of the tongue should always be employed in the first instance in cases of syncope from chloroform. If after ten minutes respiration has not recommenced he recommends the surgeon as a last resource to perform rhythmical compression of the heart.

Since the publication of Dr. Boureau's paper the first successful case of resuscitation by rhythmical compression of the heart has been recorded. At the last meeting of the Society of Anesthetists Dr. E. A. Starling reported the case of a man, aged sixty-five years, whose appendix vermiformis was removed under nitrous oxide and ether. During the trimming

of the stump both pulse and respiration stopped together. Artificial respiration and traction on the tongue were performed without success. Then the surgeon, Mr. W. Arbuthnot Lane, introduced his hand through the abdominal incision and felt the motionless heart through the diaphragm. He gave it a squeeze or two and felt it restart beating, though no radial pulse was discernible. As voluntary respiration was still suspended artificial respiration was continued and other restorative measures were adopted. Artificial respiration had to be continued for about twelve minutes, when natural respiration recommenced with a long, sighing respiration, while at the same time the pulse became perceptible. The operation was completed without any more anesthetic and a good convalescence followed, though there was some diaphragmatic tenderness. It should be noted that the method adopted by Dr. Starling and Mr. Lane, whom we congratulate, differs from those previously employed. Instead of incising the diaphragm as recommended by Mauclaire, the simpler method of compressing the heart through the diaphragm was adopted. The previous results of manual compression of the heart are not very encouraging, but Mr. Lane's success by such a very simple and easy procedure justifies us in saying that if during laparotomy the patient's heart stops the case should never be abandoned as hopeless until manual compression of the heart through the diaphragm has been performed.—*Lancet*, Nov. 29, 1902.

THE TREATMENT OF GASTROPTOSIS, BASED ON ONE HUNDRED CASES.

The *Philadelphia Medical Journal* of January 3, 1903, contains an article by FRANCINE. After discussing the etiology of this state he says in regard to treatment that lavage seems to do these patients good, even when there is no retention. The mere introduction and flow of the water stimulates peristalsis and acts beneficially on the mucous membrane and muscular walls of the stomach, as held by Kussmaul, Malbranc, and others. It is, of course, strictly indicated when there is retention of much mucus, and as a rule it is sufficient to wash the stomach out twice or three times a week in the more severe cases, while in mild cases one or two washings frequently give permanent relief. It is one of our strongest cards in the treatment of this condition.

To the above measures the addition of a prescription to combat fermentation serves in many cases to effect complete relief from symptoms. The drugs which will be found of most service in this particular are resorcin, carbolic acid, creosote, aromatic spirit of ammonia, and sodium bicarbonate. Any one or more of these may be used in combination with bismuth, pepsin, or, in fact, almost any stomachic, with the greatest benefit. Ewald suggests the following prescriptions:

℞ Tinct. nucis vom., f℥vj;
Resorcin resublimat., f℥j;
Tinct. cinchon. comp., f℥ijss.

M. S.: Ten to 15 drops every two hours.

℞ Resorcin resublimat.,
Bismuth. subnitratis, ää ℥ijss;
Sodii bicarb.,
Ext. rhizomæ calami,
Sacchar. alb., ää ℥ij.

M. S.: Teaspoonful every two hours.

The following prescription used by the late Dr. William Pepper has proved of service in the author's hands:

℞ Creosote (beechwood), gr. vj;
Sodii bicarb., ℥ij;
Pulv. acaciæ,
Sacchari, ää q. s.;
Spts. Lavandulæ comp., f℥ij;
Aquæ, q. s. ad f℥iij.

M. S.: Teaspoonful after meals.

A very effective prescription, recommended by Dr. John H. Musser, known in the pharmacy of the University Hospital of Philadelphia as "carbol-soda," is the following:

℞ Acidi carbolici, gtts. vj;
Sodii bicarb., ℥ij;
Spts. ammon. aromat., f℥iv;
Spts. chloroformi, f℥ij;
Mist. sodæ menthæ, f℥iij.

M. S.: Teaspoonful after meals and at bedtime.

Creosote may be substituted in the above for carbolic acid. Carbolic acid is sometimes given in smaller doses, a twelfth of a grain in capsule, repeated every two hours. A grain of sodium bicarbonate or other suitable drug may be given with it in this way.

Other combinations may, of course, be used, adapted to a particular case, or as the physician is driven from one redoubt to another. Sodium bromide is frequently

of service in those patients in whom a sedative would be expected to do good. Nux, in ascending doses before meals, is a favorite remedy with many when there is much loss of motor power and dilatation. A pill of silver nitrate (gr. 1-6) and extract of belladonna (gr. 1-20) is frequently employed, especially when there is obstinate constipation. Diarrhea usually disappears with the reduction of the gastrointestinal fermentation. When there is nausea and vomiting the following does good:

℞ Bismuthi salicylatis,
Pepsinæ, ää ʒij;
Cocaine hydrochlor., gr. j;
Aquæ cinnamomi, fʒiij.

Sig.: A teaspoonful t. i. d., or more frequently, as the case demands.

HOT AND COLD WATER IN EYE DISEASES.

NANCE states in the *Medical Standard* for December, 1902, that the principal points in the consideration of this subject may be thus briefly summarized:

1. Heat and cold are best applied to the eye by moist pads. They are more efficacious when employed in this manner than by means of the coil or bladder, in that their action is more penetrating, and their effect is more germicidal.

2. The application of heat is indicated in degenerative corneal processes—interstitial and phlyctenular keratitis, corneal ulcers, pannus, infected corneal wounds, hyphemia, hypopyon, suppurative panophthalmitis, in iritis and cyclitis, in muscular spasm, and in contusion and ecchymosis of the eyelids ("black-eye") to hasten absorption of extravasated blood.

3. The applications should be of the highest temperature the patient can endure, viz., 110° to 135° F.

4. They should be employed for a period of fifteen minutes, and repeated at intervals of two or three hours, for many hours.

5. Cold is indicated in hyperemia and inflammation of the conjunctiva. In purulent conjunctivitis it is the remedy *par excellence*. In traumatisms, especially those of the iris and lens, and in the early treatment of contusions of the lids, its employment is of value.

6. In purulent conjunctivitis iced applications may be continuously used for many hours so long as the cornea remains unimpaired, in which instance they are positively contraindicated.

7. Hot applications greatly assist the rapid absorption of various medicaments employed in ophthalmic practice, and when used for this purpose should immediately precede the instillation of such solutions.

TREATMENT OF ARTERIOSCLEROSIS.

In the *Medical Press and Circular* of December 10, 1902, HUCHARD, of Paris, is said to recommend the following plan of treatment: In regard to hygiene and alimentary regimen he believes that a milk diet should form an important part of alimentation, while certain exciting liquids should be suppressed—tea, coffee, liquors of every kind—and also food containing more or less ptomaines, such as fish, game, pork, and tinned meat. All liquids should be moderate in amount, and just sufficient for the needs of the organism, otherwise they produce a kind of vascular plethora which is certain to provoke arterial hypertension. This strict regimen should be absolutely imposed on all patients suffering from a gouty or rheumatic diathesis. While prescribing the above regimen it is well to have recourse to intestinal antiseptics—naphthol, benzonaphthol, charcoal; but the best antisepsis of the intestine is combined with evacuation of its contents. The patients should consequently avoid constipation. The medical treatment proper is limited to three or four drugs, but they render good service, as they produce more or less rapidly vasodilatation, followed by lowering of the arterial tension. Among these may be mentioned nitroglycerin and iodide of potassium or sodium, the latter constituting the treatment *par excellence* in small continued doses. Huchard prescribes the following preparation as antidyspneic and diuretic:

℞ Tincture of grindelia robusta, fʒj;
Tincture of convallaria majalis, fʒijss;
Tincture of squills, fʒj.

Fifteen drops three times a day in water.

Dyspnea being one of the essential signs of arteriosclerosis, especially that to which has been given the name of toxic dyspnea, of alimentary origin, M. Huchard, as soon

as he perceives it, institutes the following regimen during six months or a year:

1. For eight days absolute milk diet, three quarts daily.

2. During the following eight days (and so every month during the whole period) mixed diet: eggs, fruits, grapes, a small quantity meal once a day and never in the evening.

3. Suppression of game, cheese, tea, alcohol, tobacco.

4. A slight purgative now and again.

5. During the period of mixed diet two or three wafers of ten grains of theobromine.

6. During the period of purely milk diet iodide of potassium.

7. In case of cardiac insufficiency moderate doses of digitalis.

THE TREATMENT OF DYSMENORRHEA.

Dysmenorrhea is such a protean affection that it seems to defy classification, and its treatment is consequently vague and uncertain. Its relationship to uterine disease and displacement is the subject of perennial discussion, and it cannot be said to have any pathology of its own. Roughly speaking, cases of dysmenorrhea may be divided into two classes—the cases in which the pain, once established, is constant, and those in which it is spasmodic or intermittent. Constant pain is believed by some to be indicative of ovarian origin, while the intermittent form is associated with functional distress of the uterus. In the latter form the onset of the pain coincides with the onset of menstruation, and in these cases dilatation of the cervix is often followed by marked relief. The objection to dilatation of the cervix is that the relief which it affords is almost of necessity ephemeral, and in order to render it permanent certain gynecologists advocate division of the circular muscular fibers of the cervix. It is to be feared, however, that this operation, though it may relieve the dysmenorrhea, exposes the patient to the usual consequences of laceration of the cervix—consequences which the operation of trachelorrhaphy was specially designed to obviate. Restricting the purport of our remarks to the treatment of dysmenorrhea of uterine origin, in which the pain comes on with the flow, is more or less intermittent in character and is not relieved by lying down, dilatation of the cervix will afford relief in a considerable proportion. Dilatation does not correspond to any particular size of sound; the essential thing is to introduce larger sizes until resistance has been overcome.—*Medical Press and Circular,* Dec. 10, 1903.

THE SERUM TREATMENT OF ACUTE AND CHRONIC MORPHINE POISONING.

HIRSCHLAFF, of Berlin, reports the preparation of a serum from the blood of rabbits which had been subjected to the influence of morphine for from three to five months, and gives the result of its use experimentally upon animals, and also therapeutically in one case of acute poissoning by morphine, and in several cases of chronic addiction to the drug. He found the minimum lethal dose of morphine for rabbits to be 0.24 grain per kilo of body weight. This quantity invariably produces death in from one and a half to three hours. By injecting from one to five cubic centimeters of this serum into rabbits, he found that he could give them from 0.24 to 0.38 grain of morphine on the following day without producing death. In some cases as much as 0.48 grain per kilo body weight was required to produce death. The same experiment produced equally good results with mice, which are very susceptible to the action of morphine. Similar results were obtained by Grofreddi, an Italian investigator, who prepared a serum from the blood of dogs which had been kept under the influence of morphine for some time. Cats to which this serum was given could withstand twice the minimum lethal dose of the drug.

The first case in which Hirschlaff used his serum therapeutically was that of a young woman who had taken 7.45 grammes of tincture of opium, and who presented all the symptoms of acute poisoning. This patient received 6 cubic centimeters of the serum hypodermically. In addition she also received injections of camphorated oil, and one milligramme of atropine. Hirschlaff attributes the favorable progress and recovery of this case to his serum, as the drugs were given merely to control symptoms, and could have had

no direct antidotal effect to the opium. In cases of mild chronic addiction to morphine—*i.e.*, insane persons who had been given small quantities of morphine daily for years—it was found possible, after administering five cubic centimeters of serum hypodermically, to withdraw the drug without producing any symptoms of withdrawal. When the drug was suspended without previously using the serum all the symptoms manifested themselves. Hirschlaff believes that his serum will prove of value not only in acute morphine poisoning, but in the treatment of habitués during the period of withdrawal.—*Berliner klinische Wochenschrift,* Dec. 8 and 15, 1902.

PURE ETHYL CHLORIDE AS A GENERAL ANESTHETIC, WITH SPECIAL REFERENCE TO ITS USE IN MIDWIFERY.

To the *Medical Press and Circular* of December 10, 1903, BURNET contributes his experience with this anesthetic, to which we have more than once called attention. The special point emphasized by the author is that he did not obtain such complete muscular relaxation with chloride of ethyl as obtained by using chloroform. This was particularly noteworthy in the cases where forceps were applied. At the same time, however, he is certain that where the patient has to be kept under the influence of an anesthetic for any length of time it would be a distinct gain to start with chloride of ethyl, and after this preliminary start to resort to chloroform. Less of the latter will then suffice, and much valuable time will be saved in the preliminary stages. The anesthesia produced by chloride of ethyl is wonderfully rapid. It is asserted that less than two minutes suffices to reduce the sensibility of the patient. It is very important that the patient should breathe only air charged with ethyl chloride vapor, as if pure air is mixed with it, it will take a much longer time to produce anesthesia. A proper mask is therefore very useful, but for midwifery practice is not altogether indispensable. The best time to begin the administration is when the patient has a "pain," as she is then inclined to cry out, and in so doing breathes deeply, and so inhales more of the vapor.

The author, owing to his short experience with this comparatively new drug, prefers chloroform for ordinary cases; but where the case is likely to prove a long one, and the patient requires an anesthetic, he would feel justified in starting off with chloride of ethyl preparatory to chloroform administration. He thinks that for minor operations pure ethyl chloride is an ideal anesthetic. Its action is rapid, and its administration safe and pleasant for the patient.

HOW SHALL WE ANESTHETIZE?

Professor WITZEL, of Bonn, describes his method of administering ether as follows:

The mouth, throat, and nose of the patient are cleansed with antiseptic washes and inhalations, and a hypodermic injection of morphine is given one hour before giving the ether. The patient is placed on a table having an inclined headboard, and his head and neck are bent forcibly backward so that the plane of his face is perpendicular to the floor, and his mouth is on a lower level than the opening into the larynx. The chest is higher than the head and neck. This position prevents mucus from flowing down into the larynx, and also allows any secretions from the larynx itself to flow into the mouth. The hyoid bone is also drawn forward by tension of the soft parts between the suprasternal notch and the chin. The ether is given drop by drop in exactly the same manner as chloroform is given. The after-treatment consists in having the windows of the patient's room opened, and having him make forced respiratory movements as soon as he recovers from the anesthetic. Witzel calls this process "ventilation of the air passages." If it be very painful, small doses of morphine are given. If any nausea exists the stomach is washed out. It is claimed that this method produces no irritation of the respiratory tract, that it rarely occasions nausea, and that it requires only a small quantity of ether to produce complete anesthesia. After an extended experience with chloroform Witzel has abandoned its use except in cases in which it is necessary to produce very rapid anesthesia. In these he employs combined ether-chloroform anesthesia.—*Münchener medicinische Wochenschrift,* Dec. 2, 1902.

THE USE OF LARGE DOSES OF SALICYLATE OF SODIUM IN CERTAIN DISEASES OF THE EYE.

In the *Ophthalmic Record* for December, 1902, GIFFORD, of Omaha, tells us that although the use of salicylate of sodium for rheumatic and some other inflammations of the eye is common, there are classes in which its advantages are not sufficiently appreciated. The author also believes that the doses usually given are too small to accomplish the best results.

First, with regard to the method of administration it has been found that the average patient will stand during the waking hours—that is, from 7 A.M. to 10 P.M. —one grain of salicylate to each pound of his weight without serious inconvenience; that is to say, a patient weighing 150 pounds wound stand ten 15-grain doses given an hour and a half apart, while many patients stand much larger doses without complaint. The highest dose given by the author was in a case of sympathetic ophthalmia, where a boy, weighing 120 pounds, took 180 grains during fifteen hours. The author has been told that frequently 100 grains have been given at a single dose. In giving these large doses the main difficulties are a tendency to produce collapse and gastric disturbance. Years ago Gifford had two cases of quite marked collapse from doses considerably smaller than a grain to the pound, but for a number of years has not been troubled in this way. This he attributes, to some extent, to the practice of making the patient go to bed after taking the third or fourth dose, or in the case of children, keeping them in bed all day. He also generally gives the salicylate in brandy, dissolving an ounce in four ounces, which gives approximately 15 grains to the teaspoonful. Such large doses are not always required, and it is well to begin with less, unless the case is urgent, but in many cases the best results cannot be obtained with less; for instance, the author had a number of patients who would make considerable improvement on ten doses a day, but who would then come to a standstill and make no further progress until eleven or twelve doses were given. When giving as much as this, he always allows the patient to go without the drug for a day or two every third or fourth day. Another desirable precaution is to warn the patient to keep the head wiped dry if there is much perspiration, as otherwise a severe cold may be taken. Each dose of the brandy and salicylate mixture is given in about one-eighth of a glass of water, and about the same amount of water drunk immediately afterward to get rid of the taste. A good plan in some cases is to have the patient eat a small cracker after the medicine. Where, in spite of these precautions, the stomach rebels, a change to giving the salicylate in capsules, following these with the brandy and water, is sometimes advantageous, as the disgust which some patients express for the drug is due, to a large extent, to its taste. While aware that temporary blindness and deafness have been reported from smaller doses, the author believes that such cases must be so extremely exceptional that they need have no more weight than the blindness which occasionally results from a moderate dose of quinine.

Now as to the diseases in which it is to be recommended, it is the most important of drugs in all non-specific inflammations of the iris, ciliary body, sclera, and episcleral tissue, whether or not there is any question of rheumatism. In the acute retrobulbar affections of the optic nerve it also seems to be of great value; also in acute glaucoma as recommended by Sutphen. In the cases classed as optic neuritis, there are so many conditions which are not really inflammation, but are due to stasis or thrombosis, that he has less faith in the salicylate than in large doses of the iodides; and the same is his impression with regard to the forms of chorioretinitis localized at the posterior pole of the eye. Of the affections in which he believes the salicylate deserves a wider use, he lays especial stress on sympathetic ophthalmia, postoperative or traumatic inflammation of the iris and ciliary body, interstitial keratitis, and herpes of the cornea.

In interstitial keratitis, where the patient shows no marked signs of hereditary syphilis, the salicylate in large doses acts almost like a specific, and this is especially true of the one-sided form with sharp crisscross lines of opacity which one occasionally sees in adults. With patients who are plainly the victims of hereditary

syphilis, the action of the salicylate upon the keratitis is less certain, but it is always of value, and in many such it does more good than either the iodides or mercury. With the interstitial keratitis of acquired syphilis he has had no experience.

Perhaps no class of cases demonstrates more clearly the lack of a necessary connection between the action of the salicylate and the rheumatic diathesis than the cases of iritis which not infrequently occur after cataract extraction. These with rare exceptions respond promptly to the generous use of the drug.

In herpes of the cornea, the patient sometimes suffers atrocious pain, which hot applications and atropine fail to relieve. Such cases formerly gave him much trouble, but since he has treated them with salicylate, especially in connection with local applications of iodine to the cornea, as recommended particularly by Friedenwald, he has had much better results.

CHLORIDE OF ETHYL AS A GENERAL ANESTHETIC.

CUMSTON states in the *Boston Medical and Surgical Journal* of January 1, 1903, that although his experience with this anesthetic is as yet comparatively small, he can state that chloride of ethyl may be given to subjects of any age, principally at the two extremes of life at a time when the organism does not as yet present, or on the other hand has lost, that vitality which is requisite to support the shock of an anesthetic, be it either chloroform or ether. In examinations requiring a general anesthetic there is nothing that can compare with it, and for short operations, such as arthrotomy, the opening of an abscess, deep cauterizations, curettement of the uterus, the reduction of certain dislocations and fractures, etc., it is ideal. General surgery is not alone to profit by the innocuity of chloride of ethyl, and throat specialists will find it of great value.

On account of the facility with which it is given, and its harmlessness, an experienced anesthetist is not required, and it may be given by any careful physician. These are the principal advantages which this anesthetic presents for operations of short duration, not lasting over four or five minutes. When used as a preliminary to the administration of ether, it avoids the period of excitement which is so disagreeable, and on account of its pleasant odor and non-stifling effect the most nervous patient will take it with ease. Besides this, the amount of ether used afterward may be safely put at one-third or one-half less than would have been required had the anesthesia been entirely with ether. The transition from one anesthetic to the other is quite insensible. There is no doubt that operative shock has been greatly diminished in the major operations done by the author when ethyl chloride has been used as a preliminary anesthetic, and that nausea has been absent in almost all of them when consciousness has returned.

Such are the principal indications for the use of chloride of ethyl, and as to the contraindications, it may be said that up to the time of writing none have been given. The method is as yet too young for us to affirm that such will always be the case, and for the time we must wait for a greater experience to give sanction to the statements advanced at this time. The author has never seen any cyanosis, and the return to consciousness takes place with regularity and quiet.

ATROPINE: ITS USES AND CONTRAINDICATIONS IN OPHTHALMIC PRACTICE.

In the *Brooklyn Medical Journal* for January, 1903, JAMESON writes an interesting paper on this subject, in which he discusses the exact value of atropine in the treatment of eye diseases, and amongst other points he asks and answers the question, Is the use of atropine indicated in simple uncomplicated diseases of the conjunctiva? We know that its physiological action, when directly applied, is first slight contraction of the muscular coats of the arteries, which is shortly followed by paralytic dilatation, and again by its action upon the peripheral nerve filaments it retards the secretion and flow from salivary and mucous glands. From the foregoing it goes without saying that the paralytic dilatation of the blood supply of a membrane whose vessels are al-

ready suffering from overdilatation and distention, as is present in nearly all forms of conjunctivitis, is the condition least to be desired in the furtherance of its recovery; and while it may be argued that the action of this drug in lessening the secretion of overactive mucous glands might be beneficial, yet in the writer's mind this is doubtful, as stimulated secretion is one of nature's methods of flushing the conjunctival sac, and indeed the mucous glands themselves, which if their contents become stagnant constitute the best possible nidus for bacteriological invasion, growth, and propagation.

He then takes up for consideration its use in iritis. Atropine is our sheet-anchor in iritis. First, it puts the tissues of this inflamed organ at rest; secondly, the contraction it produces diminishes its overloaded blood supply; and thirdly, by dilatation of the pupil it prevents, if used in the early stages, that most lamentable condition, posterior synechia, or adhesion of iris to lens. By placing the iris at rest it diminishes the pain, thereby adding to its own analgesic effect. By attenuating the vessels, and squeezing their contents out, it diminishes the amount of plastic exudate, and by its third and possibly most valuable property, it puts the iris beyond danger of a condition, that of synechia just mentioned, which, if it take place, is an endless source of trouble to the patient, and indeed one which may result in ultimate ruin of the organ itself. And yet even in iritis there are sometimes contraindications to its use. In certain cases of cyclitis, inflammation of ciliary body, the iris by contraction throws its blood into the already overdistended ciliary body, and for this reason it is not well borne, and a myotic and mydriatic used alternately—say pilocarpine and homatropine—may be employed in its stead to keep the iron on the move, so to speak, alternating contraction and dilatation, and thus preventing its agglutination to the lens.

The writer says a word as to the influence of atropine on synechiæ which have already formed. Its efficacy in separating these adhesions after their formation is attributable to the fact that the stroma of the iris is not frequently adherent itself to the lens, but its posterior epithelium, which is more friable, and thus more easily separated, is often to be seen remaining on the lens after success has attended our efforts. The pain which so frequently is present after the first instillations in cases of synechiæ does not contraindicate its use, as it is generally caused by the pulling and dragging of the agglutinated portions of the iris from the lens, and we should not permanently desist on this account.

PRACTICAL POINTS IN OBSTETRIC PRACTICE.

To the *Journal of the American Medical Association* of December 27, 1902, FUSSELL, of Philadelphia, contributes his views as to this subject founded upon large experience. He says that the man in general practice is constantly called in the middle of a busy day to attend a case of labor. He is hurried. He does not wish to remain if it is necessary; indeed, he cannot do so, but he should never allow his hurry and his desire to get through to interfere with the first law of cleanliness.

The practitioner's duty under such circumstances is this: It is absolutely necessary, both for the safety of the woman and the child, and for the economy of the physician's time, that he should know exactly how far advanced labor is. It is true that by external manipulations one may discover fairly well the presentation of the child, and whether or not labor is in progress, but the author believes that a vaginal examination is absolutely necessary to discover whether he must stay with his patient or may safely leave her, and for how long.

The first thing that Fussell does before making a vaginal examination is to take off his coat and waistcoat, roll up his sleeves above his elbows, scrub his hands and forearms thoroughly for five or ten minutes with brush, soap and water, clean his finger-nails with a knife or nail-cleaner, then immerse his hands in a strong bichloride solution, 1:1000 or 1:500. Having done this he has the woman in a proper position for examination, and will allow nothing whatever to touch his hands;

especially they must not be wiped off with a towel, but be taken dripping from the antiseptic solution and the examination immediately made.

Having made this examination he is in position to know the progress that labor has made. If it is safe for him to do so, he leaves the house, giving instructions what is to be done during his absence. If he must remain, he immediately gives his instructions. If the bowels have not been moved very recently they are ordered emptied by an enema; the exterior genitals are washed with clean boiled water. A vaginal injection is not to be given.

He then prepares himself for the labor by dressing himself in a clean duck coat and trousers. This he considers of a great deal of importance. In the first place it looks neat; in the second place it protects the clothing and allows one to go promptly from a labor case of severity to other cases without any trace of the labor; in the third place, and of the very greatest importance of all, it protects the woman against contamination from dusty, dirty clothing. Any physician who drives about all day is in no sense in a proper state of cleanliness to make it safe for him to bring his clothing in close contact with the woman in labor. It is very little trouble, practically no trouble, to carry in the obstetric bag a clean pair of trousers and a clean coat.

He then has placed on the bed a Kelly pad, which has been cleansed by the nurse in attendance. If we trust to the persons about the house—and remember, he is speaking now of the ordinary, every-day, common labor case to which the majority of us are called—we will be handed an old quilt, an *old* one, a piece of carpet, or anything that is thick, it makes no difference whether it is clean or not. The Kelly pad will last for years, is cleanly, and will insure the woman against being poisoned from that source.

If the labor is a simple one, the presentation and position normal, there is very little else to be done except to leave the case to nature. As few vaginal examinations should be made as is practicable, but previous to every examination, if the hands have been used for touching objects about the room, they should be again scrubbed, again immersed in antiseptic solution, before the examination is made; and if this procedure is carefully carried out, it makes little difference how many examinations are made. But repeated examinations are useless, and by a possibility may be harmful, and therefore should be limited.

Fussell does not propose to discuss here when to use forceps. The subject would lead him entirely too far afield; but if forceps are to be used the following procedures, in his opinion, are imperative: First, have the forceps carefully boiled in the receptacle on purpose for it, if there is one; if not, place the forceps in some vessel large enough to entirely cover them with water and allow them to boil for ten or fifteen minutes. Place the woman in position, carefully scrub the genitals, reprepare the hands by scrubbing, clean the finger-nails, and lastly, but not most important, immerse them in antiseptic solution. Have the forceps brought to the room in the receptacle in which they were boiled. Do not allow them to be touched by any one; do not touch them with anything except a clean hand or a perfectly antiseptic cloth which has been boiled or immersed in solution; do not wipe the forceps off. The writer has seen a man carefully boil his forceps, just as carefully scrub his hands, take the forceps from the receptacle, deliberately pick a towel up from the floor and wipe off the forceps. Certainly all the precautions of boiling and of scrubbing the hands had been made useless by this act, which was entirely needless—needless even if a clean cloth had been used, but more than needless, harmful, when a soiled towel had been used. Let the forceps be applied and the child carefully delivered. If there is a tear, let it be at once sewed with needle and silk or gut, which has been boiled with your forceps.

The pad which is to be applied to the vulva for cleanliness' sake must also be absolutely clean. The monthly nurse who is so common in most houses will likely hand to you a bunch of rags which certainly look anything but clean, and which, nine times out of ten, have been lying on the floor in the closet. Of course, these must be discarded, and either a cloth

which you know to be clean or one which you have yourself boiled used in its stead.

In a word, every time an object is to be brought into contact with the genitals of a lying-in woman, that object, be it hand, forceps, needle, or what not, must be as near aseptic as it can possibly be.

HEMORRHAGE BETWEEN THE DURA MATER AND THE BONE; SUCCESSFUL OPERATION.

A man, thirty-one years old, found lying in the gutter, brought to the care of TOOGOOD (*Lancet,* Nov. 1, 1902), had a small lacerated wound on the scalp, about two inches above the left ear. He could barely stand and walk. When shouted at he spoke, but his answers bore no relation to the questions. He was exceedingly obstinate. His pupils reacted to light, and were equal. During the process of washing out his stomach he became more unconscious. In about two hours, during which he was carefully watched, there was no doubt about the loss of power on the right side. He was becoming comatose, and his pupils were small and did not react.

A small semicircular flap on the left side of the scalp was raised under chloroform. A small fracture was detected running vertically up from the anterior inferior angle of the parietal bone. The skull was trephined over the anterior branch of the middle meningeal artery. Fresh blood-clot appeared and bright blood welled up. The trephine hole was enlarged downward with cutting forceps, but still no injury to the artery was detected. A disk of bone was then removed over the position of the posterior branch of the artery, and although the blood-clot extended well back to this spot, yet the artery was apparently intact. The blood-clot was thoroughly cleared out, the anterior branch of the artery was tied as low down as possible by running a silk ligature under it with a needle, and the hemorrhage ceased. A gauze drain was passed into the skull with the ends projecting from the trephine holes, and the scalp wound was sewn up. Immediately after the operation the patient could move his right arm and leg with freedom. The gauze drain was removed in about two days, there being practically no discharge. The next day the patient recovered consciousness, but he continued very restless and irritable for another week. The wound healed completely by first intention, and the patient's recovery was uneventful, with the exception that he complained of his eyes failing him after a short spell of reading. This passed away in a few weeks.

The posterior trephine hole enabled the blood-clot to be entirely cleared out, which would have been impossible from the anterior aperture.

The patient said he had been knocked down by the shaft of a cart that ran into him in the fog.

CAMPHOR FOR ULCERS OF THE LEG.

SCHULZE (quoted in *New York Medical Journal,* July 19, 1902) says that camphor gives the best results in ulcer of the leg. The following are his prescriptions:

Triturated camphor, ½ drachm;
Zinc oxide, 7½ drachms;
Lard, to 6 ounces.

M.

Or,

Triturated camphor, ½ ounce;
Zinc oxide, 3 ounces;
Olive oil, 3 ounces.

M.

"CIRCULUS VITIOSUS" FOLLOWING GASTROENTEROSTOMY.

The occurrence of vomiting following gastroenterostomy suggests to the anxious surgeon the presence of that most unfortunate condition known as the vicious circle. As the "circle" is not always present, a better term, perhaps, would be reflux, as indicating the passage of bile and pancreatic secretion, as well as that of the contents of the jejunum, into the stomach.

A review of the literature of gastroenterostomy in recent years, as well as his own experience with the operation, has taught FOWLER (*Annals of Surgery,* November, 1902) that the conditions most to be feared, next to collapse during or immediately following the operation, are the occurrence of, first, the vicious circle; secondly, distention of the duodenum from forcible propulsion of the stomach contents directly into the afferent portion of the intestinal loop employed; and thirdly, reflux of the jejunal contents. The

first two may bear some relation to each other; the last named occurs independently of either of the others. On the theory that the jejunal reflux is first caused by mechanical pressure of the abdominal walls upon the efferent portion of the loop forcing the jejunal contents into the stomach, every effort should be made to prevent the occurrence of vomiting. The operation should be done, whenever possible, under infiltration cocainization. This would also lessen the tendency to fatal collapse which so frequently follows the operation of gastroenterostomy. There is some doubt about the value of McGraw's elastic ligature in this condition.

With the orifice of communication sufficiently low down upon the efferent portion, and only large enough to permit of the free escape of the bile and pancreatic juice, and at the same time insure against recontraction, the possibility of distention of the duodenum should be avoided. Nor should embarrassment of the gastric motor function take place.

The indications arising from the vicious circle, as well as overfilling of the duodenum and consequent motor insufficiency, can only be met by absolutely cutting off all communication between the stomach and the afferent portion of the loop. After studying the various attempts to do this, Fowler, with the object of securing to the patient the maximum of benefit with the minimum of risk, has devised and employed in these cases a method of gastroenterostomy which consists, in brief, of first securing a communication between a loop of the jejunum and the stomach, then an enteroenterostomy between the afferent and efferent portions of this loop, and finally, obliteration of the lumen of the afferent loop between the two points of anastomosis. He has selected the simplest and most rapid method of performing gastroenterostomy, and added to it a procedure which occupies but a minute or two, and yet absolutely precludes the possibility of direct intercommunication between the stomach and the afferent loop. This is accomplished by passing a No. 20 silver wire two or three times around the afferent loop at the point selected, and drawing upon the turns sufficiently to occlude the lumen without strangulating the wall of the intestine. The ends are twisted together, cut short, and the ends rolled into a flat coil in such a manner as to bring the cut ends in the coil, thus guarding against subsequent injury to the surrounding structures.

The procedure suggested for preventing the interchange of contents between the stomach and duodenum consists essentially of the following steps: (1) Gastrojejunostomy with enteroenterostomy between the two limbs of the jejunum; (2) circumclusion of the afferent limb of the jejunum between the points of anastomosis by means of a silver-wire ligature.

PROSTATIC ABSCESS—PRERECTAL CURVILINEAR INCISION.

The gratifying results obtained in three cases of prostatic abscess with the curvilinear incision without opening the urethra has warranted RANSOHOFF (*Annals of Surgery*, November, 1902) in presenting a paper on the subject.

First, regarding the diagnosis of prostatic abscess, when the condition is first suspected there is but little difficulty. At times, however, the diagnosis is not made until invasion of the rectovesical fascia has taken place. This very invasion decreases the value of the rectal touch for accurately determining the condition of the prostate gland. When once the finger feels a soft, indentable, fluctuating spot underneath the rectal mucosa, it can no longer be determined to what extent the suppuration is intra- or periprostatic. Furthermore, the value of the rectal touch is diminished in the abscess complicating prostatic hypertrophy. Fortunately this is counterbalanced by the prominence of other signs, notably the intermittent urethral discharge, which makes the recognition of the secondary infection relatively simple.

A very large proportion of prostatic abscesses if untreated open into both rectum and urethra (twenty-one out of sixty-seven). Such cases are either rapidly fatal, or if recovery ensues, leave urethrorectal fistulæ that are often beyond relief. A dominant factor in determining the method of attacking a prostatic abscess must always be the relation this bears to the urethra. In 55 out of 115 cases the abscess opened spontaneously into the

urethra or was opened by the beak of a passing instrument. How frequently the urethral drainage of even these superficial abscesses is insufficient is manifested by the chronicity of the discharge and the recurrence of retention symptoms.

Whatever the primary source of their infection, deep-seated prostatic abscesses develop within the gland substance without entangling alliances with either urethra or rectum, although with the growth of the abscess there is a tendency to open into either channel in the order given. The direct inference is to go in between urethra and rectum.

In the first case he reports, that of a young man of twenty-four, well nourished, cholecystotomy was first performed, and later prostatic abscess was diagnosed. A prerectal curvilinear incision was made, beginning near the tuber ischii of the right side, curving around and within an inch of the anal orifice to the same point on the left side. A staff was not used. After the division of the superficial fascia, with a few fibers from the external sphincter to the bulbocavernosus, the bulb of the corpus spongiosum and the transverse perineal muscles were readily exposed and drawn forward with a blunt retractor. The rectum was then drawn backward, and in the depths of the wound the fibers of the levator ani and the compressor urethræ were held aside after blunt dissection. By this blunt and almost bloodless dissection the rectum was easily separated from the posterior surface of the prostate gland. The urethra was not opened. With an aspirating needle the abscess within the gland was easily located. It was opened through a median posterior incision. Vent was thus given to about one ounce of thick, creamy pus. The examination of this later showed the Neisser diplococcus and the staphylococcus. A small drainage-tube was inserted into the abscess cavity, and the large wound, which had somewhat the appearance of the vagina, was readily closed with three silkworm-gut sutures on each side of the middle line. The hemorrhage during the operation was almost *nil*. The patient became entirely well.

The operation in the other two cases was somewhat similar.

One valid but slight objection has been urged to the prerectal incision. It was encountered in the second case—sloughing of the anterior wall followed by a fistula. When large prostates are to be removed, this danger would be somewhat greater, but by adhering closely to the prostatic capsule and guiding the cleavage away from the rectum, this danger will be minimized. The advantages of the method of operation fully outweigh this possible, though not probable, wound complication.

Various methods have been devised for bringing the prostate into the perineal wound, but this can be accomplished as well with a short-beaked stone-searcher. This, firmly depressed, can be made to bring the prostate within easy access.

Various modifications of the prerectal operation have been made, all making for greater room for operative work. In the operation for prostatic abscess, the prerectal incision alone will suffice. For the major operation of prostatectomy, an incision made from the right extremity of the initial cut into the ischiorectal fossa and carried around the right side of the anus toward the coccyx affords an abundance of room for the thorough isolation of the prostate before its removal is begun. This operation, devised by Gosset and Proust, permits the operator to displace the rectum backward and to the left. As performed on the cadaver it appeared to Ransohoff to be ideal.

PROSTATECTOMY—THE TECHNIQUE.

With such modifications as appear to be demanded by special conditions, the technique of prostatectomy, according to BRYSON *(Annals of Surgery,* November, 1902), is as follows:

The anesthetized patient, whose perineum and abdomen have been prepared as for a celiotomy, is placed in the lithotomy position; a catheter is introduced; the bladder is irrigated with warm boric acid solution, and filled with warm salt solution to a point just below that which produces distention reflex. A broad, grooved staff is introduced, and a free median perineal incision is made in such a way as to open the urethra just in front of the apex of the prostate. Most frequently the bulb is split, in which case a

spurting vessel is clamped, or an oozing is stanched with a catgut suture *en masse*. The knife, after entering the groove of the staff, is pushed backward far enough to incise the ring at the apex of the prostate, which is one of the least distensible parts of the duct. The forefinger follows well into the prostatic urethra, usually tearing it somewhat, and the staff is withdrawn. The finger quickly explores the prostatic urethra and ascertains whether the vesical outlet can be reached, after which the forefinger of the right hand in the rectum permits bimanual exploration of that part of the prostate within reach. Guided by the finger, a blunt instrument is now passed into the urethra and made to puncture, from the urethral side, the lowermost part of the mass. This puncture is always made in the lower posterior quadrant, and the instrument is pushed well into the swelling. On its withdrawal the finger tears its way well into the center of the mass, which, even in fibrous prostates, is comparatively friable. The mass is now opened through to its capsule, the finger swept round its periphery without tearing the prostatic capsule or fibrous sheath of the gland. In the meantime the urethra is felt to tear longitudinally. After the lobe has been loosened all around, there remains its attachment to the urethra, in detaching which care must be had not to take away too much of the sides nor any of the roof of the urethra. The floor may be disregarded. The hypertrophied lateral lobe is then removed, to do which one has often to go well up beside and behind the neck of the bladder; yet it is possible to do this and keep within the capsule. Very little bleeding follows, but what there is appears to come from the torn mucous membrane, the lower part of which is brought away. If there be any difficulty in delivering the detached mass, which is often smooth and slippery, an ordinary lithotomy forceps may be employed. If it is too large, it may be broken up with the finger or divided with the scissors.

This process is repeated on the opposite side, after which a median posterior segment sometimes remains to be dealt with. This can usually be done by sweeping the finger from side to side, its dorsal aspect toward the capsule, pushing it backward in such a way as to detach it well up behind the bladder and roll it downward. The more the detached mass is rolled downward by pulling upon its upper surface, the less mucous membrane is removed. Usually, the finger may now be passed with ease through the ring into the bladder, which, being emptied with the catheter, may be explored thoroughly, aided by pressure made by an assistant or by the disengaged hand over the pubes.

If the operation is found to be complete, the cavity is now irrigated with a hot salt solution, until the oozing, which is usually slight, ceases, after which a finger is introduced and finds the roof and for the most part the sides of the urethra intact, the latter often hanging loosely against the outer sides of the cavity from which the growths have been removed. A large cavity is made out, between the lower part of which and the rectum there is felt a thin wall. Into the lower part of this, hinged posteriorly about the ring at the vesical neck, is an irregular flap of mucous membrane, which can be pushed up and back and often made to occlude the vesical outlet. If properly managed this tongue of mucous membrane readily becomes attached, behaving subsequently like an autoplastic flap. Care must be taken not to double backward and push this flap into the bladder when, as is now done, the large drainage-tube is introduced, the wound edges retracted and the cavity packed with gauze, loosely or tightly, as may seem necessary to provide against subsequent hemorrhage.

Emboldened by the consideration that at any stage of the operation by the lower route the operator might cut into the supravesical space or even do an epicystotomy, excochleation is commenced as soon as the finger reaches well enough beyond the prostatic apex to afford working space. Working from below, the operator is sometimes surprised to find that a thick panniculus and protuberant belly are not great obstacles to the efficient employment of hypogastric pressure. The experience of the author in several cases made it seem justifiable to begin the operation of enucleation even before the vesical outlet came within reach.

Experience gained in the course of the work has confirmed an initial impression that incision into the supravesical space should be postponed to the latter part of

the operation, since even in the case of quite large prostates it may not be necessary. In the case of sessile and *encollerette* projections, the operator may be surprised at the ease with which they may be shelled out from beneath the trigonal space.

As modifying the technique described above, the question of the size of the prostate which may permit delivery by the perineal incision, and the kind of incision which is primarily made and subsequently enlarged, has importance. This will in some measure be determined by whether or not the operator wishes to remove the prostate in one mass or by morcellation. Since there has appeared to be no satisfactory objection to piecemeal excochleation, this has been done, and so the simple median perineal incision has been found adequate up to the present time.

In connection with the technique, experience in several cases has led to the practice of doing, in four cases, a preliminary epicystotomy for drainage and the treatment of bladder and kidneys, and to the conviction that, when epicystotomy is demanded at all in prostatism, it is an advantage to do it as a preliminary operation, and that this practice seems likely to materially reduce the mortality in that large class of cases coming for relief in the terminal stages of a surgical disease which is of serious import even in its inception.

PROLAPSUS ANI IN CHILDREN—PARAFFIN INJECTIONS.

For the relief of rectal prolapse in children KAREWSKI *(Centralblatt für Chirurgie,* July 12, 1902) has employed subcutaneous injections of paraffin having a melting point of 56° to 58° C.

The patients, purged for two days, on the day previous to operation received large doses of bismuth to lock up the bowels. The field of operation was disinfected and the prolapse was reduced. A finger was then introduced into the rectum to act as a guide. Through one needle puncture the paraffin was injected in the form of a ring above the anus between the skin and mucous membrane. By suitable diet and the administration of bismuth an evacuation of the bowels was prevented for the following twenty-four hours.

Eight children between two and eight years of age were treated by this method. One case was unsuccessful because of a faulty technique, but all the remainder were cured so far as could be judged from examinations made in from two to six months since the operation.

In two cases the paraffin had to be injected a second time, and in a case of an idiotic feeble child a third injection was made. In the remaining cases a single introduction of paraffin sufficed.

Although in some of the cases the bowels moved during or shortly after the operation, an infection never occurred, because the injection wound was kept protected.

The author believes this treatment would give satisfactory results in adults.

EXSTROPHY OF THE BLADDER AND EPISPADIA—NEW OPERATION.

The various operations for exstrophy of the bladder having proved unsatisfactory to SUBBOTIN *(Centralblatt für Chirurgie,* December 21, 1901) he devised a new operation whereby a portion of the anterior wall of the rectum is employed as a reservoir and outlet for the urine.

The rectum is exposed by excising the coccyx through a vertical skin incision carried downward from the third sacral vertebra. The posterior wall of the rectum is then split from the anus upward to bring the anterior wall into view. The rectal mucous membrane is cleansed and a tampon is inserted into the rectum. Directly above the external sphincter an incision three centimeters long is made through the anterior wall of the rectum and through the corresponding portion of the posterior wall of the bladder. By a continuous suture of catgut the edges of the rectal wound are united with the edges of the vesical wound, forming a wide anastomosis between the rectum and bladder. A horseshoe-shaped incision, with its open end extending into the perineal skin, is made through the mucosa of the anterior wall of the rectum around the anastomotic opening. This flap includes about one-third the circumference of the rectum.

The edges of the flap are then slightly reflected from the underlying muscles, folded over toward one another, and secured in position by a continuous catgut suture which includes the muscle as well as the mucosa. By this means is formed a pear-shaped reservoir extending through the anterior part of the anus to open on the perineum. The reservoir has a free communication with the bladder, but none with the rectum. The wound in the posterior wall of the rectum is closed with a double layer of catgut sutures. The skin incision is closed except for a point of drainage.

The defect in the anterior wall of the bladder is covered in by a flap from the scrotum except for an opening large enough to permit of continuous catheterization. A tube is then placed in the rectum to permit of the free escape of flatus. After two weeks a catheter is passed daily through the new rectal urethra. At the end of six weeks the edges of the suprapubic fistula are freshened and united by suture, the bladder and reservoir being drained for a week by continuous catheterization through the rectal urethra. Thereafter the patient is able to urinate through the artificial urethra and continence is obtained by the action of the sphincter ani.

The author has employed this operation in two cases and obtained very satisfactory results. The patients have perfect control over the new bladder, and they urinate only five or six times daily. Defecation occurs simultaneously with urination whenever the rectum contains feces. The absence of any communication between the rectum and the new reservoir effectually safeguards against an ascending infection of the urinary tract from the rectum, an accident prone to follow other methods of employing the rectum in operations for relief of exstrophy of the bladder.

SPINAL ANESTHESIA—NEW METHOD.

The distressing symptoms of vomiting, headache, dyspnea, perspiration, and fever, which accompany or follow the anesthesia produced by the injection of an aqueous solution of cocaine into the spinal canal, are, according to KOZLOWSKI *(Centralblatt für Chirurgie,* Nov. 8, 1902) due directly to the irritating effects of the water and drug. These symptoms persist in many cases for a week or more, and form a clinical picture which the French surgeons have designated "aseptic meningitis."

Of the numerous methods tried the only expedient of any value is the substitution of tropacocaine for cocaine. One operator has employed an aqueous solution of tropacocaine in sixteen cases of spinal anesthesia. In nine of the cases symptoms of vomiting and headache without temperature elevation were experienced in four to six hours after injecting the solution, but in the remaining seven cases no unpleasant symptoms whatever developed. The analgesia was perfect in every case.

Kozlowski's observation led him to believe that the reaction following this method of anesthesia is not due to the poisonous properties of the tropacocaine, but to mechanical or chemical irritation of the cerebrospinal meninges produced by the solution. Inasmuch as the tropacocaine is practically non-irritating, he concluded the reaction must be due to the well known irritating properties of the water, to be avoided by substituting for the water cerebrospinal fluid as a vehicle for the tropacocaine.

Guinard has reported on seventy cases of spinal anesthesia produced by this method in which none of the cases displayed any disagreeable symptoms as a result of the anesthesia. Guinard injects a drop of concentrated aqueous solution of cocaine after first diluting it by means of cerebrospinal fluid withdrawn from the patient.

Kozlowski's method consists of first weighing out 0.05 gramme of dry pulverized tropacocaine in a dry, warm, sterilized glass dish. He then introduces the hypodermic needle between the second and third or between the third and fourth lumbar vertebræ and allows 5. grammes of cerebrospinal fluid to drop on the tropacocaine. By shaking the glass dish, the tropacocaine completely dissolves and forms a one-per-cent solution in the cerebrospinal fluid without the addition of any water. This solution is sucked up in the hypodermic syringe and injected into the subarachnoid space. Tropacocaine

(Merck's) has been employed directly from the original bottle without any previous sterilization. Pulverized tropacocaine is sterile in itself, and any attempt at sterilization is unnecessary, provided strict aseptic precautions are taken to prevent its contamination.

The method is simple, easily carried out, and is not time consuming. Most important of all, it occasions no unpleasant symptoms.

More frequent employment of spinal anesthesia, both in hospital and private practice, is advised by Kozlowski, who looks upon the danger connected with the procedure by his method as being not much greater than that of a needle puncture.

AMPUTATION OF THE LOWER LEG—TENDO ACHILLIS AS A PAD.

In cases of amputation through the lower portion of the leg, WILMS *(Centralblatt für Chirurgie,* July 5, 1902) suggests the advisability of drawing the tendo Achillis over the ends of the divided bones and suturing it to the periosteum and connective tissue in front of the tibia. This would interpose a soft cushion between the bones and skin. He has carried out this procedure in one case and secured a painless, functionally perfect stump.

KIDNEY INJURIES—TWENTY-SEVEN CASES.

Twenty-seven cases of injury to the kidney were important enough to be treated in the Friedrichshain city hospital (GOLDSTEIN, in *Deutsche Zeitschrift für Chirurgie,* August, 1902) during the past twenty years. Mild injuries of the kidney in which only a trace of blood was observed in the urine for a day or two were not included in the above list.

Of the twenty-seven cases, six died. In four of these death was attributable to other than renal injuries.

The injury of the kidney was subcutaneous in twenty-six cases; it was percutaneous in one, the result of a self-inflicted bullet wound. Nineteen of the patients were men, two were women, and six were children. This proportion in relation to sex and age is easily explained by the injury usually being due to the occupation at which the patient was engaged. Most of the injuries resulted from the patients being run over by a wagon wheel, or by falling from a height and striking on the side. Some of the injuries were caused by kicks in the renal region. One patient received her injury by running against the sharp edge of a table. With the exception of one case, all the subcutaneous injuries were caused by direct blunt violence. The lesion in each of the six children was caused by the patient having been run over.

The symptoms which the patients presented varied greatly, even aside from the severity of the lesion and the length of time which had elapsed since the receipt of the injury. Twenty-five of the cases were admitted to the hospital within two to six hours after receiving their injuries. One case presented himself on the second day, and the remaining case on the eighth day.

Many of the patients exhibited signs of severe shock. In some of the cases showing most marked symptoms of shock, neither the urine examination nor the local findings in the renal region betokened a very severe lesion of the kidney. All the patients complained of severe pain as well as very marked tenderness on pressure over the affected side. This symptom was found particularly serviceable in helping to exclude the bladder as the origin of the blood in the urine. In two cases the local pain could not be ascribed with certainty to the kidney, for both patients had fractures of the lower ribs. This local pain was constant at times, but sometimes assumed the type of a renal colic due to blood-clots in the ureter. Dulness on percussion in the flanks was noted in most of the cases, but it was not always present. The extent of the abnormal dulness varied in proportion to the amount of bleeding, and it increased directly with the anemia. The area of dulness extended on an average three to four fingerbreadths below the costal arch, and forward as far as the mammillary line. In three cases, which were extremely anemic and bordering on a state of collapse, the dulness extended forward almost to the linea alba. In some of the cases which came to the hospital soon after the receipt of the injury it was possible to establish

a slow progressive increase in the size of the area of dulness by repeated percussion. This increasing area of dulness proved an especially valuable sign in making a differential diagnosis from the dulness due to a fecal mass in the intestines, for upon the progressive enlargement of the area of dulness depends to some extent the question of operative interference.

Blood in the urine, as shown by macroscopic, miscroscopic, and chemical examination, was present in every case. The color of the urine varied from that of meat juice to a dark brownish-red. In two cases casts containing red blood cells were noted; in two further cases renal epithelium was found in the urine. The intensity and the duration of the hematuria varied considerably. Except for the fatal cases, the blood usually disappeared on the fourth to the fourteenth day; but in one case the urine cleared up on the second day, and in another case the hematuria persisted for twenty-three days. In several cases secondary hematuria appeared after the urine had been perfectly clear and free from red blood cells for some days. In one case the secondary hematuria proved fatal; in a second case a fatal result was barely averted.

In giving a prognosis in these cases the surgeon should take into consideration the general condition of the patient following the injury, the risks of secondary hemorrhage, and the increased dangers due to any complicating rupture of the peritoneum. The diagnosis as to whether the peritoneum is injured or not is generally very difficult, often impossible. Frequently it cannot be decided whether peritoneal symptoms, such as an anxious expression, small and rapid pulse, restlessness, eructations and vomiting, are due to perforation or only to the irritation of the peritoneum produced by the retroperitoneal hematoma. An important symptom pointing to rupture of the peritoneum is the gradual development of pain extending over the whole abdomen. This symptom was present in four of the above cases and led to the belief that the peritoneum was ruptured. In two of these four cases operation was performed and the diagnosis confirmed. Cases of unilateral renal injuries in which dulness is obtained on both sides suggest a rupture of the peritoneum with an outpouring of blood and urine into the general peritoneal cavity.

In the great majority of cases the patients were treated symptomatically. Ergotine was employed to check the hemorrhage, and camphor, champagne, and other stimulants to counteract the cardiac weakness. Operations were performed in only two cases; both of these died.

On account of the unfortunate results in the operative cases and of the favorable outcome of the cases treated conservatively, the author advises conservative procedures in every case possible, and operation in only the most urgent. Operation is indicated (1) in cases of exceedingly profuse hemorrhage which result from the tearing of a large vessel or from multiple extensive lacerations of the kidney, and (2) in cases where continuous observation reveals a slow but progressive hemorrhage which cannot be controlled by any other means of treatment. A careful endeavor should be made in every recent case to differentiate between the symptoms of the initial shock and of hemorrhage. By this expectant therapy not a single case has resulted fatally in the past ten years, although many of the patients, especially at first, presented a very serious clinical aspect.

NASAL DEFORMITIES—SUBCUTANEOUS INJECTIONS OF PARAFFIN.

In the case of the human subject, GRIMMER (*Montreal Medical Journal*, No. 12, 1902) has found that paraffin with melting points of under 100° may be absorbed, while those of 112° and upwards may cause necrosis of skin. In his two cases of deformities of the nose he employed paraffin melting at 104°.

Careful cleansing of the part to be operated upon, strict aseptic precautions generally, and perhaps the injection of a few minims of a one-per-cent solution of cocaine, is all that is required for preparation. Sterilize the paraffin by heating to 212° F. in a covered beaker; allow it to cool to 120° F. as tested with a sterile thermometer; then place the beaker in a basin of water at 120°. Fill a warmed, sterile, 5 cubic centimeter solid metal serum syringe, to which the needle is yet unattached, with the warm paraffin. Ex-

press any air bubbles, quickly screw on a warmed sterile large-calibered needle, and place the syringe thus charged until required in a basin of a saturated solution of boric acid at 120° F.

The needle of the charged syringe may be inserted from near the tip or root of the nose as may be most convenient, but it should be entered at a point at least half an inch distant from the depression and be carried subcutaneously a little beyond the point of greatest deficiency, making sure that the sides of the nose toward the inner canthi and the tissues over the nasal eminence are firmly compressed by the fingers of an assistant or by some mechanical appliance to prevent the escape of the paraffin in these directions. The piston of the syringe may then be slowly compressed, the point of the needle moved about as required, and when the desired amount has been injected, withdrawn. The assistant still retains his finger at the sites indicated, while the operator molds the paraffin as it hardens, which takes two or three minutes or even longer. It is advisable to continue to keep the paraffin in good position for ten or fifteen minutes, as, until quite firm, the elasticity of the nasal tissues tends to flatten it out. If the nasal orifices or cavities have been narrowed by the previous disease, it is advisable to introduce Asches nasal tubes of suitable sizes during the operation and to retain them until the paraffin hardens. Other points of importance are not to force paraffin into the needle until the injection is commenced; and, once started, not to stop compressing the piston until the operation is completed. Otherwise the needle will clog and cause much trouble and delay.

In the after treatment, apply flexible collodion to the needle punctures and place some absorbent wool over the part. If swelling of the nose and edema of the eyelids commence, iced compresses and cold astringent lotions should be applied. Immediately after the injection the skin over the paraffin is very white; this is soon followed by hyperemia. In several cases there has followed some swelling of the nose and edema of the eyelids, which disappeared in a few days under cold compresses. In the first of Grimmer's cases the superficial congestion of the nose was marked, but was gradually subsiding four weeks after operation. In this case numerous dilated vessels were visible through the skin of the nose previous to operation. The application of an ointment composed of equal parts of suprarenal extract and vaselin to the hyperemic area hastens recovery.

The amount of paraffin required varies with the extent of the deformity to be corrected, but from 2 to 8 cubic centimeters is the amount that has been used in most of the recorded cases. When the larger amount mentioned is required, it will be found best to inject it in two portions at short intervals, rather than the full amount at once, since if so done less reaction will follow.

CANCER OF THE STOMACH; RADICAL CURE.

Cancer of the stomach, in the opinion of MAYO (*St. Paul Medical Journal*, December, 1902), is a hopeless malady unless it can be cured by operation. Early diagnosis, however, is extremely important, even though the stomach is a favorable organ for operation. The surgeon should be called in consultation on the slightest suspicion of cancer just as much as in appendicitis or ectopic pregnancy, and should be permitted, in cases of doubt, to perform an exploratory operation.

The presence of a tumor should not of itself be convincing to the physician that an operation would be useless. A small movable tumor in the pyloric region with obstructive symptoms is a favorable condition. A large tumor, or one indefinite in outline or of fixed character, might lead to a doubtful opinion. Another cause of delay in diagnosis is the comparative uselessness of laboratory methods to diagnose cancer of the stomach.

Given a previously healthy person of middle age or beyond, who is beginning to lose weight and strength with loss of appetite and slow and more or less painful digestion, cancer should be suspected. If at the end of a few weeks of thorough examination adequate reason for the condition is not disclosed, there should be exploration. In several instances this operation has revealed the cicatrix of a former ulceration to be undergoing malignant de-

generation, hence the necessity of obtaining a careful history as an aid to the diagnosis.

Cancer of the pyloric region gives early evidence of retardation of the progress of food from the stomach. The repeated finding of material left from the evening meal in the morning washings from the stomach easily suggests the condition.

By distending the stomach with air, which can be done best with an ordinary stomach tube and a Davidson syringe, not only can its outline be developed, but a tumor may often be brought up within reach of the palpating hand.

The surgical exploration presents no difficulty as to the presence of gross lesions, and usually the malignant nature of the trouble is manifested. Occasionally, however, an ulcer will have so great an amount of new tissue about it as to closely resemble cancer.

As to operation, the two most important considerations are the extension of the disease to the neighboring tissues, and the lymphatic involvement. As a rule extension to neighboring viscera contraindicates operation. Extensive adhesions greatly complicate the operation and increase the primary mortality. Lymphatic involvement, unless localized to the vicinity of the growth, is a hopeless complication. In a general way the surgically removable glands lie in four groups: (1) along the lesser curvature; (2) along the greater curvature; (3) about the head of the pancreas; and (4) in the greater omentum.

Mikulicz thinks that the relief afforded by pylorectomy and gastrectomy justifies the operation in otherwise favorable cases, even if all the glands cannot be removed. Extension along the lesser curvature is more unfavorable than along the greater curvature. Robson advises that in every case the resection shall extend along the lesser curvature to the gastric artery to enable removal of glands which are very prone to infection and otherwise liable to be overlooked. Secondary involvement of the viscera shown by ascites and so forth precludes operation. There is but little tendency for the growth to invade the duodenum. In a fair proportion of hopeless cases present or imminent obstruction indicates gastroenterostomy.

After purely exploratory operations for inoperable disease the permanent buried sutures of silk or silver wire in the strong fascia permit the patient to get about at once and leave the hospital in a few days.

The following technique, in radical operations, has been found by Mayo to be simple and satisfactory: Through a median incision, having its inferior angle at or slightly to the left of the umbilicus, the stomach is exposed, and the gastrohepatic omentum tied as far to the left as the gastric artery. This mobilizes the diseased part, and by passing the fingers behind the pylorus in the lesser cavity of the peritoneum the gastrocolic omentum can be tied off without danger to the superior mesenteric artery. A gauze pad is drawn under the freed part, and a heavy clamp is placed on the duodenum with sufficient force to form a groove. A catgut ligature is tightly tied in this groove, a clamp placed on the stomach side, and the duodenum divided just beyond the ligature. A silk purse-string suture about the duodenum, three-fourths inch below, enables the tied end to be invaginated in a similar manner to the stump of the appendix. The stomach is turned up and to the left and heavy clamps placed an inch from the growth. In the sulcus formed by the pressure a continuous catgut shoemaker's stitch is placed, using one thread with a needle at each end. The diseased part is then severed and a continuous silk Cushing suture rolls in the first suture line. Independent gastroenterostomy with the Murphy button is then performed either upon the anterior or posterior wall of the stomach as preferred. The operation is quickly done, without loss of blood or opening of the stomach.

CELIOTOMY: MAKING AND CLOSING THE MEDIAN WOUND.

To secure a firm line of union with the least possible scar, and to obviate hernia and some objections in other methods, GOELET *(Medical Record,* Oct. 11, 1902) has adopted a method of making and closing the median celiotomy incision which has given him satisfaction.

The skin and fat are divided in the median line down to the fascia covering the muscles of the abdominal wall; then one

side of the wound (right or left, as may be selected for convenience of the work to be done within the abdomen) is retracted, and the fascia covering the rectus muscle, about a third of an inch from the median line, is nicked with the knife and split up and down with the scissors to the limit of the incision in the skin above and below. The muscle is then separated with the fingers in the direction of its fibers down to the subperitoneal fat, which, with the peritoneum, is opened in the usual manner. The advantage thus gained is that in closing the wound muscle is approximated to muscle to one side of the incision in the skin, and a firmer line of union is secured.

In closing the wound a continuous suture of No. 1 chromicized catgut is applied throughout, and this is tied only at the start and at the finish. The first layer includes the peritoneum, subperitoneal fascia, and the lower border of the muscle on each side, beginning at the upper angle of the wound and continuing to the lower angle. By including the lower border of the muscle with the peritoneum in this suture, the leaving of a dead space between the peritoneum and muscle is avoided. Continuing with the same suture from below upward, the fascia is united, and this layer of sutures is made to include the upper part of the muscle with the fascia. Thus, again, a dead space between the muscle and fascia is avoided. The suture is tied off at the upper angle of the wound. Unless the fat is unusually thick, no suture will be required above the fascia. When necessary, it is drawn together by a continuous suture, applied from above downward, the insertions from side to side being made in the direction of the incision and not transversely to it.

The margins of the skin may be approximated either by a subcuticular suture or by application of aseptic adhesive strips, one-quarter inch wide, applied with space between them, to permit drainage into the dressing applied over them. After adjusting loose gauze directly over the strips, a thick pad of absorbent cotton, covered with gauze, is applied over it, and this is held down firmly by means of broad adhesive strips across the abdomen from side to side, securing firm pressure upon the wound.

It is essential that all bleeding should be arrested before the integument is approximated, and all bleeding points that have been caught with hemostatic forceps should be ligated with No. 1 plain catgut. Unless this is done, bleeding after the wound is closed may be sufficient to separate the margins of the skin and prevent primary union. This is particularly necessary when the skin is approximated by adhesive strips. Simple oozing is usually arrested by sponging with hot salt solution.

When a second celiotomy becomes necessary, if the cicatrix is a good, firm one, and has not spread so as to be unsightly, it is not disturbed, but the incision is made a third of an inch to one side through the skin, and so on down through the rectus muscle. If the cicatrix is disfiguring, but firm beneath, the skin cicatrix is dissected out, and the abdomen is opened to one side, as has been described above.

GASTROPTOSIS: TREATMENT BY BEYEA'S OPERATION.

Because the medical and mechanical treatment of gastroptosis secure only partial relief, besides not correcting the cause, BEYEA *(Pennsylvania Medical Journal,* November, 1902) devised an operation that, in the cases in which it has been done, promises remarkable results. The danger of the operation, with the best aseptic and antiseptic technique, is little or no more than that of a simple exploratory celiotomy.

The abdomen is opened midway between the xiphoid cartilage and umbilicus by an incision three inches in length. Three rows of interrupted silk sutures are placed from above downward, and from right to left through the gastrohepatic ligament or omentum and gastrophrenic ligament. When secured, these sutures form a broad transverse fold or plication in and shorten these ligamentary supports, and elevate the stomach to normal position. Bier has operated upon four cases in a similar manner, except that fewer sutures were employed, and in two of the cases the shortening of the gastrohepatic ligament was supplemented by passing two sutures through the serosa of the lesser

curvature of the stomach and then through the capsule of the left lobe of the liver. In all, seven cases have been operated on. These had suffered from five to ten years with characteristic and very severe dyspeptic and neurasthenic symptoms. In every case the severe symptoms of gastroptosis rendered the patients chronic invalids and incapacitated them for their occupation and social duties. The convalescence was normal, the suffering not being more than after any exploratory celiotomy. Beyea's patients were kept in bed in the recumbent position for from four to six weeks after operation, and on a special diet. Six of the patients have been observed from sixty-five days to three years, and in every case the improvement in health has been very remarkable. The relief of the symptoms has been complete. Any character of food is taken. Lasting weight has been gained, beginning at once.

In no instance, regardless of the length of time which had elapsed since operation, had the stomach changed in position. In three the line of greater curvature of the stomach is from one to two inches above the umbilicus, and in the other three of Beyea's cases from one to one and a half inches below the umbilicus.

INTESTINAL ANASTOMOSIS: RELATIVE MERITS OF DIFFERENT METHODS.

To ascertain the relative merits of the various methods of intestinal anastomosis, COFFEY *(Journal of the American Medical Association,* Nov. 1, 1902) made 650 experimental operations on the dead intestine and twenty on living pigs. All types of methods were tested.

The conclusions eliminate almost every method in vogue. The Murphy button is not left out of this elimination, though this appliance may be found the most useful in cases of extreme shock that require speed.

The ideal suture is the interrupted Connell suture. It has been found to be quick, accurate, surgical, direct, and adaptable. It has the serious objections, however, that it is hard to understand by any but those with a mechanical turn of mind, or to employ by any but those who practice it more than occasionally. To overcome these stumbling-blocks, another and a simpler method has been specially devised by Coffey.

All that is required in making this anastomosis is some digestible substance like a potato, turnip, carrot, bread, etc., with two pins, which may be simply toothpicks, small pieces of wood, a hat-pin, a knitting needle, darning needles, or two probes ordinarily carried in a pocket case, and a needle and thread.

Place two or three Connell sutures at the mesenteric border. Insert a thin digestible tube (probably the best may be cut from a potato). One end of the intestine is held on the tube with the left hand, while with the right hand and the hand of an assistant the other end of the intestine is drawn over the tube and held in place, while with the right hand a pin is inserted through the intestine including the edges of both ends and passing through the potato. Another pin is then inserted likewise at right angles to the first, holding the intestine in four places.

Any method may then be chosen for suturing. The quickest and probably as good as any is a continuous suture. This method is the quickest of all intestinal sutures, and can be placed almost as quickly as the Murphy button. The suture may be done by simple interrupted Lembert stitches or by the Halsted quilt stitches.

After the suturing has been completed and the pins removed, the tube is slipped away from the site of the operation and crushed to prevent any possibility of obstruction.

GANGRENOUS INTESTINE; RESECTION OF NEARLY EIGHT FEET; RECOVERY.

Though removing large portions of the intestines has become common, it is not often that the operation is done, as in the case reported by HARRIS *(Medical Record,* Oct. 11, 1902), after the patient has come a long distance in an ambulance, more or less exhausted, with a violent peritonitis in progress.

The patient was a sculptor who was suddenly attacked, following a game of golf, with exceedingly severe pain, which centered in the umbilical region. For several years previous to this attack he had been troubled with similar ones, but not

so violent. They occurred at long intervals and were sudden in their onset, though the patient would be in apparently perfect health. In this last attack no method gave relief, and the operator was consulted.

When the patient was put on the table, a small incision large enough to admit the finger was made over the appendix, to which point, according to the patient, the pain was most referable.

There was a tremendous gush of blood-stained serum, the stream rising fully ten inches from the surface of the wound and continuing for several seconds. It was apparent that an acute peritonitis was in progress.

The wound was closed, and the abdomen was reopened in the median line. Then a very large mass of black and gangrenous intestines appeared. They were bound down in the right iliac fossa close to the cæcum, which was drawn toward the median line. The mass was about seven inches in the transverse diameter, and the coils of which it was composed ran for the most part transversely; a few, however, were parallel with the long diameter of the abdomen. The point of constriction was close to the posterior abdominal wall and to the cæcum.

The constricting band, as thick as a lead-pencil, was divided, and the intestines were spread out on hot towels. The intestine was found to be the ileum. The ileum, having been previously clamped, was divided close to the cæcum; the remaining vessels of the mesentery were tied and trimmed away close to the spine. Above, the ileum was divided one inch from the upper limit of the gangrene, an assistant holding the upper end.

The mass with the adherent strips of mesentery was removed. The abdomen was thoroughly flushed out with hot salt solution, and preparations were made for joining the intestines. The opening in the cæcum was closed, the edges being inverted and closed with a double row of Lembert sutures, one-half of a Murphy button being first pushed into the cæcum. This button was then pushed against the wall on the other side of the cæcum beside the appendix. An opening being made, the button was brought through and held by an assistant. The end of the ileum was inverted and closed by a double row of Lembert sutures, the second half of the button having been previously placed in the bowel. This was brought through in the same way as the other, and the intestine was joined to the cæcum by a lateral anastomosis. No additional sutures were required, except a row in the mesentery.

The abdomen was now thoroughly flushed out and closed, the different layers being united separately. The wound was dressed with wet bichloride dressing. The intestine removed measured seven feet ten inches. The time of operation was one hour.

The patient stood the operation fairly well. At one time when his pulse became weak he received a hypodermic of 1-30 grain strychnine sulphate, and also a hypodermoclysis of salt solution beneath the breasts. He was placed in bed and surrounded with hot-water bottles. A saline enema was repeated every two hours. Vomiting of small quantities of dark-brown fluid was frequent during the night. The temperature ranged from 100° to 101.6° and back to 99.2°; the pulse varied between 128 and 154, and the respiration from 14 to 42.

He vomited continually the same brownish-green fluid. Enemata were expelled clear; no gas. Strychnine was continued, and heroin, one-twelfth grain, every three hours, was tried to quiet him and to control vomiting, but with no effect. The medication was continued the following day, and in addition the stomach was washed out with saline solution, washing being continued until the return flow was perfectly clear. Lavage seemed to exercise a favorable effect on the vomiting. Peptonized milk was retained for an hour, but vomiting then began. On the third day hypodermic injections were given of digitalin, 1-100 grain every four hours, alternating with strychnine; lavage was continued. On the eighth day the patient received a slight setback by trying in the absence of the nurse to reach a small table. The peptonized milk, which made the patient sick, was replaced with malted milk. With this he was able to take raw eggs daily. For several weeks, this constituting the principal part of his nutriment, he continued to have no trouble. The Murphy button was found in the rectum on the twenty-fourth day.

During convalescence the patient had days when he would have attacks of sharp pain, like colic. These were relieved by enemata. His return to solid food was gradual, but when he left the hospital he could eat almost anything, and had gained weight.

He has a slight tendency to diarrhea, but this he believes is due to too much vegetable food.

TUBERCULAR PERITONITIS, AND ITS TREATMENT BY LAPAROTOMY.

From 1884 to 1902 thirty-nine boys and thirty girls were treated for tubercular peritonitis at the Children's Hospital, Boston. These cases, the subject of a study by ROTCH *(Journal of the American Medical Association,* Jan. 10, 1903) are sufficient to show the condition to be extremely rare in the early months of life, the youngest case recorded being one of fourteen months. After the first year and a half of life the disease became more frequent, and was most common between two and four years, after which it was of only occasional occurrence.

The average duration of the symptoms before the child entered the hospital was about three months. Abdominal tenderness was generally absent; if present, it was rarely severe. The movements of the bowels were not significant, loose movements and constipation alternating, one being about as frequent as another. Even in the cases in which an autopsy showed the presence of tubercular ulcers of the intestines, there was as a rule nothing especially characteristic or suggestive noted in the discharges.

As special symptoms, the temperature was irregular and as a rule elevated, but in some cases it was only slightly above normal, and at times was normal or even subnormal. The pulse was usually accelerated, its rate varying between wide limits. The respirations also were generally accelerated, and varied between wide limits.

The presence or absence of leucocytosis in the sixty-nine cases appeared of very little value in either the diagnosis or the prognosis of tubercular peritonitis in children.

The analysis of the total number of cases reveals that tuberculosis of the mesenteric lymph-nodes does not preclude a successful result. Also, that inasmuch as the presence of palpable masses and the absence of fluid does not preclude a successful operation, and inasmuch as the degree of intestinal adhesions can only be surmised before operation, laparotomy would seem to be indicated in all cases of tubercular peritonitis, but on some conditions: one is that the general condition of the patient permit; another, the absence of evidence of cerebral, pulmonary, or extensive glandular or bone tuberculosis. The presence of tuberculous ulcers of the intestines is an unfavorable condition for operation, but in many cases they cannot be diagnosticated by the clinical symptoms.

FRACTURE OF THE NECK OF THE FEMUR.

The method of treatment THOMSON *(Journal of the American Medical Association,* No. 1, 1903) employs for fracture of the neck of the femur simply carries out the principle of treatment of fracture in any other bone in the body. This he believes to be best obtained by anesthetizing the patient, so as to relax the muscles and enable the surgeon to ascertain the exact nature of the injury and more completely replace the parts. Impacted fractures should be very carefully handled. In fracture of the femoral neck this is best accomplished by having an assistant make forcible extension on the limb (while a second assistant, the anesthetist, makes counter-extension from shoulders) until it is drawn down to equal length with its fellow, while the operator manipulates the upper end of the bone, reducing the fracture as well as possible; and holds it while the assistant carries the limb into abduction of about 10 degrees. This position of abduction has a tendency to hold the fractured ends together, and facilitates keeping the patient clean afterward. The operator now applies Shaker flannel bandages to the entire limb and body, as high as the armpits, amounting to about four layers. Over this is applied plaster-of-Paris dressing (reënforced with soft steel plates at hip and knee) sufficiently strong

to maintain the form. During the application of the spica the limb is constantly held by the assistant in extension and abduction as noted above. Care must be taken for the first twenty-four hours that undue pressure or strain is not brought to bear on the plaster before it is sufficiently dry. If at any time the patient complains of pain over prominent parts, as the knee or malleoli, a portion of the plaster may be removed to relieve the pressure. After the plaster has become sufficiently dry the patient may be turned from side to side to relieve the hypostatic congestion of lungs, or for the purpose of bathing. If the spica is continued sufficiently high on the thorax it will not materially interfere with respiration. It is only when it ends at the free border of the ribs that the patient complains in this respect. By this method of treatment the patient is enabled to materially assist in the use of the bedpan without the danger of disturbing the fragments.

In all cases of fractured femoral neck, firm bony union and useful limbs may be expected. Age is not a counter-indication to the treatment nor to obtaining bony union. Immobilization should be continued for a long time, and three months should elapse before allowing weight on the limb. Buck's extension with weight and pulley is not sufficient immobilization. Apparatus in these cases is much inferior to the plaster-of-Paris spica.

The operative treatment in old and neglected cases has succeeded beyond all expectations, and appears to deserve a place in surgery among the radical cures for troublesome conditions.

CANCER OF THE LARYNX; THYROTOMY IN THE EARLY STAGES.

Thyrotomy for early cancer of the larynx is commended by YONGE *(Lancet,* Nov. 15, 1902) because of its comparative simplicity, its small danger, and the absence of likelihood of being followed by recurrence.

It is important, before operating, to recognize the characteristic symptoms. The most prominent sign of early malignant disease is undoubtedly a persistent dry hoarseness, especially if occurring in a person over fifty years of age. Pain on swallowing, glandular enlargement, blood-spitting, cachexia, and other symptoms indicative of the later stages of epithelioma of the larynx are generally to be regarded rather in the light of contraindications to the operation. Hoarseness in laryngeal cases being only an effect, the discovery of the cause will in the majority of instances suggest a successful line of treatment. In malignant disease, on the other hand, the usual remedies are resisted, and the intensity of the hoarseness is often found to be out of proportion to the physical signs which are to be observed by means of laryngoscopic examination. In such cases the removal of a piece of the suspected growth for microscopic examination may be advisable. It is important that the piece removed should not be too minute, but that the instrument should bite well into the tissues in order that the deeper structures may be capable of being examined. The appearances seen in the larynx are somewhat various. A distinct infiltrating growth may be present or a wart-like tumor be the chief evidence of disease, or the cord may be converted into a papillary fringe. A suggestive and early sign is a sluggishness in the movements of one or other cord not amounting to paralysis of the structure. The extension of a growth backward so as to implicate the arytenoid region is also a suspicious sign.

The first of the two cases successfully operated on by Yonge was that of a man aged fifty-seven years, who complained of hoarseness of about twelve months duration. On laryngoscopic examination the left cord was found to have been transformed into a papillary fringe; it moved less freely than the corresponding cord, which was hyperemic, but otherwise appeared normal. No enlarged cervical glands could be felt. A portion of the growth was removed with Schrötter's tube forceps and pronounced, after microscopic examination, to be squamous epithelioma. On July 29, 1901, tracheotomy was done, cutting through the isthmus of the thyroid gland and inserting the tube in the trachea between the two halves of the isthmus. On August 6 the larynx was opened by splitting the thyroid cartilage in the middle line. A sponge was inserted above the tracheotomy tube, which

was an ordinary one of large size, and cocaine was then applied to the interior of the larynx on the affected side to limit the hemorrhage and to enable the extent of the disease to be as far as possible defined. The left cord was excised, together with a portion of the left ventricular band and arytenoid cartilage. The cartilage and soft parts in this area were thoroughly scraped, and after drying were painted with iodoform varnish, and the larynx and the external wound were closed. The tracheotomy tube was removed in twenty-four hours. The patient was aphonic for a few weeks after the operation, but gradually developed a strong and fairly clear voice, owing principally to the formation of a fibrous band in the position of the vocal cord which acted vicariously for that structure.

One year and three months after the operation there is no sign of recurrence.

X-RAY TREATMENT OF CANCER—NOTES.

There is a stage in the treatment of cancer with the *x*-rays, the cancer appearing to have been destroyed and the process of repair well started, when nature should be given a chance. In one of his cases PFAHLER (*Journal of the American Medical Association,* No. 1, 1903) found that he was keeping up sufficient irritation to destroy new granulations as they formed.

A patient of seventy-two, possessing very low vitality, and suffering from a cancerous ulcer of the left eye, forehead, and face, which had been accompanied by severe pain for nineteen years, exhibited remarkable improvement after only five exposures.

In treatment for cancer of the breast, the axilla should be exposed. A patient thought almost cured before she died from an attack of uremia was found to have an indurated gland of the axilla about the size of a large pea. This portion of the body had not been exposed to the *x*-ray treatment.

The coil produces the quicker results. A low vacuum tube corresponding to an air-gap of 1½ inches is the best for superficial treatment; for deeper structures a higher vacuum tube corresponding to an air-gap of three inches will give better and safer results. One as high as 7 inches has been recommended. The distance of the exposed area may be safe at from 12 to 30 inches, depending on the amount of the energy and the resistance of the tissue. The tissue should be watched carefully if the tube is kept near. Exposure should be from five to twenty minutes, depending on the reaction obtained, and it should be repeated every second or third day unless contraindicated. For protecting the surrounding tissues, tea-lead may be used in one or two layers.

The best results appear to follow when the skin has been brought carefully to a reddened condition and kept so without producing ulceration. Dusting the open surfaces with equal parts of salicylic acid, boric acid, and starch helps to keep the ulcer clean and to assist in the formation of a cicatrix. An ointment of salicylic acid, 10 grains to the ounce of vaselin, has been recommended.

A superficial cancer requires for cure treatment of from two to six months. The deeper ones often require longer time.

The results obtained appear to be due, not to the *x*-ray itself, but to a ray that moves in a straight line.

Treatment with the *x*-rays is to be recommended in all carcinomata, but especially for those that are inoperable, or in which operation is refused. It might be best to follow all cases operated on with a course of *x*-ray treatment, which would probably bring about the most rapid and successful results.

Reviews.

A COMPEND OF DISEASES OF CHILDREN. Especially Adapted for the Use of Medical Students. By Marcus P. Hatfield, A.M., M.D. Third Edition, Thoroughly Revised. Price, 80 cents. Philadelphia: P. Blakiston's Son & Co., 1903.

In the short space of 235 pages the author has endeavored to compile all that he believes necessary for a compend upon this important specialty, and considering the limitations which are placed upon him we think that he has done very well in placing before the students so much information in a condensed form. From

our point of view there is less excuse for the appearance of a compend upon this subject than almost any other, since it is so closely related to the subject of the Practice of Medicine that the student necessarily must become familiar with many of its facts in studying a work on Practice, and really needs a complete reference book upon the Diseases of Children during his graduate year and during his life as a practitioner. We think he ought to use one of the more complete and exhaustive works dealing with this subject.

OBSTETRIC NURSING FOR NURSES AND STUDENTS. By Henry Enos Tuley, A.B., M.D. Chicago: G. P. Englehardt & Co., 1902.

This small octavo volume of less than 200 pages embodies the advice given by Dr. Tuley in his lectures on obstetrics to the pupils of the Training School for Nurses of the Norton Infirmary and City Hospital of Louisville. A considerable number of illustrations are found scattered through its pages, and safe and useful information is given which will undoubtedly be of value to many women who do obstetrical nursing, and who perhaps have not had a large amount of teaching and experience in this important part of their profession.

BIOGRAPHIC CLINICS. By George M. Gould, M.D. Philadelphia: P. Blakiston's Son & Co., 1903.

The ceaseless industry and literary research of Dr. Gould have once more resulted in the publication of further facts which he has gleaned from wide reading. The present volume deals with the origin of the ill health of De Quincey, Carlisle, Darwin, Huxley, and Browning. Its author believes that a very considerable amount of the mental and physical suffering of these well known characters in science and literature depended upon errors of refraction, or other disorders connected with the physiological function of the eye. Whether he is correct in his belief that all their miseries arose from the causes to which he assigns them it is difficult to determine, and we all know that he is one of those who believe very strongly in eye-strain as the cause of many maladies by no means closely associated with the eye. It is an interesting fact, however, that he has been able to put before us so many valuable points in the life history of these individuals which possess distinct medical bearing.

THE PRACTICAL TREATMENT OF STAMMERING AND STUTTERING. With Suggestions for Practice and Healthful Exercise. By George Andrew Lewis. With a Treatise on the Cultivation of the Voice, by George B. Hynson, M.A. Detroit: George Andrew Lewis, 1902.

The object of this book is well described in its preface. The authors have been particularly interested for a long time in studying human speech and its defects, and they have now prepared a book in which they deal with the classification and characteristics of stammering and stuttering, and the treatment which they think should be instituted for the relief of patients who suffer from these difficulties of speech. The first 166 pages of the book deal with these defects, and the last half of the book deals with the cultivation of the voice, and with exercises which are designed to enable the individual to practice the proper use of his vocal apparatus. The volume insists wisely upon the fact that no pupil can gain all the necessary advantages from the mere reading and instruction which he obtains in any volume, be it written never so well. In the vast majority of instances it is absolutely necessary that the personal element of the teacher should be exercised in order that complete control of the patient and his methods of speech may be attained. This seems to us the most sane and sensible method of treating stammering which we have seen exploited for a long time.

CLINICAL TREATISE UPON THE PATHOLOGY AND THERAPY OF DISORDERS OF METABOLISM AND NUTRITION. By Professor Carl von Noorden. New York: E. B. Treat & Co., 1903.

Part I of this treatise deals with "Obesity" and is an authorized American edition translated under the direction of Dr. Boardman Reed. The fame of von Noorden as a successful physician in the treatment of disorders of metabolism, such as diabetes, obesity, and similar states, is sufficiently great to call attention to these

little volumes, which have been skilfully translated by Dr. A. C. Crofton, of Chicago. The second part deals with nephritis, and opens with a chapter upon the customary treatment of kidney diseases. Indeed, almost this entire volume is devoted to the dietetic or other remedial methods connected with the treatment of acute nephritis, chronic parenchymatous nephritis, and contracted kidney.

PROGRESSIVE MEDICINE. A Quarterly Digest of Advances, Discoveries, and Improvements in the Medical and Surgical Sciences. Edited by H. A. Hare, M.D., Assisted by H. R. M. Landis, M.D. Volume I, March, 1903. Price, $2.50.

Philadelphia and New York: Lea Brothers & Co., 1903.

This volume of Progressive Medicine contains, first, an article upon the surgery of the Head, Neck, and Chest, by Dr. Charles H. Frazier, Professor of Clinical Surgery in the University of Pennsylvania. It is illustrated wherever illustrations are necessary to make the text valuable, and sums up an immense amount of valuable information in regard to the surgery of these important parts. The article is unusually well written, and its scope is very well suited to the needs of the practitioner of general surgery. Altogether Dr. Frazier's article covers 127 pages, and is followed by that of Dr. James B. Herrick, of Chicago, who is one of the professors of medicine in the Rush Medical College. Here, again, the important subjects of the infectious diseases, including acute rheumatism, croupous pneumonia, and influenza are thoroughly discussed, and the literature of the past year carefully considered. Special attention is given by Dr. Herrick to the needs of the general practitioner of medicine. His article deals with such important subjects as the diagnosis and treatment of diphtheria, dysentery and malaria, while of course pneumonia, acute rheumatism, and typhoid fever are also most carefully debated. The article upon diseases of children is by Dr. Floyd M. Crandall, of New York, well known to many of our readers as the Adjunct Professor of the Diseases of Children in the New York Polyclinic. He discusses the various diseases as they affect childhood, and has included in his article all that is valuable during the last twelve months in regard to these conditions. Dr. Ludvig Hektoen, Professor of Pathology in the Rush Medical College, follows this article with an exhaustive one detailing the recent advances which have been made in diphtheria, bacteriology, and with much that deals with Ehrlich's theory. The next article, on diseases of the nose and throat, is a most interesting one by Dr. A. Logan Turner, of Edinburgh, who is the Lecturer on Diseases of the Ear, Nose, and Throat in the School of Medicine in that city. Although this article deals with a special subject, it contains much that will prove of value to those who do not devote themselves to this branch of medicine. The volume closes with one upon Otology by Dr. Robert L. Randolph, the Assistant Professor of Ophthalmology and Otology in the Johns Hopkins University. Dr. Randolph thoroughly appreciates the needs of his professional brethren in dealing with the various conditions which affect the ear, and has made his article not only complete, but exceedingly interesting from the practical standpoint. Altogether, we consider this volume of Progressive Medicine one of the best which has yet appeared.

OBSTETRICS. A Text-Book for the Use of Students and Practitioners. By J. Whitridge Williams. Price $5.50.

New York and London: D. Appleton & Co., 1903.

This large octavo volume, written by the Professor of Obstetrics in the Johns Hopkins University, cannot fail to attract the attention of the profession. It is based not only upon practical experience, but also upon a most careful study of the literature of the subject. Each chapter is concluded with a bibliography which embodies all that the author thinks of value in the topic just discussed. Manifestly, it is impossible for us to thoroughly review a book with so large a scope, and so we will only refer to one or two points which have attracted our attention. We are glad to notice the very emphatic manner in which the author condemns the employment of ergot at all times but in the later stages of labor. He points out that its use before the birth is easy has produced untold harm. In regard to the administration of quinine as a uterine tonic in

cases of prolonged labor, he states that occasionally five grains of the sulphate of quinine in a freshly prepared pill or in solution, repeated in an hour, may prove of great benefit, and very properly condemns the use of ergot. Personally, we have great doubt as to whether this dose of quinine, and perhaps any dose, can really be relied upon as a direct remedy. Its stimulant influence upon the body may indirectly rally the patient's somewhat exhausted system, but surely the quinine cannot exercise very much oxytocic influence. In regard to the treatment of puerperal eclampsia, Dr. Williams does not agree with Dr. Davis and Dr. Edgar that it is always a preventable affection, and he strongly recommends the use of chloroform if actual eclampsia is present, and the use of large doses of morphine to control the convulsions after chloroform is used. Croton oil is the cathartic recommended to move the bowels. In regard to the advisability of resorting to Cæsarian section in puerperal eclampsia in primiparæ he advises against this operation, unless the patient is in the hospital under the care of a skilled operator, as he thinks that ordinary measures will subserve the interests of the patient best. We are glad to notice that he condemns the use of pilocarpine in this condition, and recommends bleeding. With veratrum viride as a remedy he states that he has had no experience.

There can be no doubt that Dr. Williams's book on Obstetrics is entitled to the success which it will undoubtedly achieve, since it is a happy combination of scientific research and practical experience.

DISEASES OF THE SKIN. Their Description, Pathology, Diagnosis, and Treatment. with Special References to the Skin Diseases of Children. By H. Radcliffe-Crocker, M.D., F.R.C.P. Third Edition, Revised and Enlarged. Price, $5.00.

Philadelphia: P. Blakiston's Son & Co., 1903.

This is by far the most exhaustive work upon Diseases of Children which has yet appeared in a single volume. It is a large octavo of nearly 1500 pages. Dr. Crocker is recognized the world over as being a most careful and skilful dermatologist, and is already known to many American medical men by reason of the articles upon the Diseases of the Skin which he contributed to The System of Therapeutics in 1890, and also by reason of numerous other contributions which he has made to dermatological literature which are regarded as most valuable by dermatologists in this country. The book contains a much smaller number of illustrations than most books upon skin diseases of the present time; indeed, it contains but few colored plates. Plate II contains no less than twelve figures illustrating eruptions of the skin. Some of these are most admirable and lifelike, while others are not so good. Thus, that of tubercular lesions of the skin is not particularly excellent, while others showing macules, circinate eruptions, and similar lesions are the best which we have seen. All through the volume frequent references are made to standard literature by foot-notes on almost every page. Less attention is given to treatment in this volume than in some of the other works on dermatology which have come to our attention within the last few months, but the practicing dermatologist cannot afford to be without it.

THE ANATOMY OF THE HUMAN PERITONEUM AND ABDOMINAL CAVITY. Considered from the Standpoint of Development and Comparative Anatomy. By George S. Huntington, M.A., M.D. Illustrated with 300 full-page Plates containing 582 Figures, many in colors.

Philadelphia and New York: Lea Brothers & Co., 1903.

In these days of gross materialism, when with few exceptions the main apology for the birth of a book is found stated in the preface, as dependent upon its practical and direct applicability to the art and science of healing, it is a satisfaction to welcome a treatise that is as scholarly and philosophical as this of Huntington.

Designed, not for the busy practitioner, that he may keep abreast of the ever-changing therapeutics of his time, but rather for the ripe scholar, or he who from the beginning of his professional work wished to become such a one, its great aim is the explanation of certain complicated morphological problems on the basis of a wider view of embryology and comparative anatomy than is usually considered worth while.

Huntington is well qualified for such a work, and he has treated the subject in a

manner so masterly as to make students who have the advantage of personal contact with him greatly to be envied.

Anatomical knowledge on such a basis is certain not only to be more accurate and comprehensive, but to lead to further study and advances, which are beyond the power of those not thus thoroughly trained in fundamental truths.

The publishers have put this admirable production in fitting form, and made the book in paper, type, and illustrations rank with the best that has ever been published in any country.

It is to be hoped that the spirit of commercialism has not so far smothered the devotion to practical science that this work will fail of the cordial reception that its merits justify.

ANATOMY. A Manual for Students and Practitioners. By William H. Rockwell, Jr., M.D. Series Edited by Bern B. Gallaudet, M.D. Illustrated with 70 Engravings.
Philadelphia and New York: Lea Brothers & Co.

Gray's Anatomy has long held first place in the heart of the student, not because of its greater accuracy, or its elaboration of the details of the science, but rather for its practical, systematic arrangement, its clear description of facts, and the power possessed by its author and his subsequent editors of choosing from the vast store of knowledge those things which seemed most essential and most distinctly applicable in the practice of the healing art.

It therefore seems somewhat singular that it should have been deemed necessary to epitomize this book, which in itself is an epitome, and often is lacking in sufficient detail even for the purpose of a general surgeon.

None the less this work has been designed particularly for the use of the student, to whom a volume as large as Gray's is in itself appalling, and for whom much that is contained in Gray's is unnecessary, at least in so far as the passing of examinations is concerned.

Whether this work be deemed desirable or not, it has been done, and extremely well done, in the present volume, which can be heartily commended to those who wish a hasty review of the major essentials of anatomy.

Correspondence.

LONDON LETTER.

BY GEORGE F. STILL, M.A., M.D., F.R.C.P.

During the month of February the first of the three Lettsomian Lectures has been delivered by Dr. Radcliffe Crocker, on the conditions which modify the characters of inflammation of the skin, and their influence on treatment. The part played by microörganisms in many diseases of the skin was emphasized. Until recent years this factor was overlooked, but its recognition has a very real practical value in indicating the line of treatment which should be adopted. In the case of carbuncle, for instance, which is due to staphylococcal infection of the skin, subcutaneous injections of a 1-in-30 solution of carbolic acid around it will often completely arrest its extension. Boils also can frequently be prevented from recurring, even if they have appeared repeatedly for several months or even years, by attacking the lesion with antiseptics in its earliest stage; each pustule, however small or superficial, should be opened at once and thoroughly disinfected with a 1-in-40 carbolic solution.

Falling out of the hair, similarly, is due in many cases to a microbic infection which has produced a seborrheic condition of the scalp. The absence of any obvious sign of irritation in these cases has led in the past to the use of local stimulants, such as cantharides, and the use of tonics internally, whereas the rational treatment is to use microbicidal applications. With this object any oily or fatty matter on the scalp should first be removed by the application of soft soap, combined perhaps with thymol or carbolic acid, and then such antiseptics as resorcin, sulphur, mercurials, or iodine should be rubbed in.

An extremely interesting discussion took place recently at the Society of Anesthetists on the relation of anesthetics to shock. When one sees so frequently in medical journals that brief heading "Death Under Anesthetic"—a heading which too often means a trivial ailment ending in a tragedy—one cannot but wonder whether these disasters are the result of too much or too little anesthetic. It was quite clear in this discussion that even the experts were

by no means agreed, for they expressed views which were diametrically opposed. The opener of the discussion, Dr. Blumfeld, said that shock and deep chloroformization are both characterized by a marked fall of blood-pressure, and that therefore in operations which themselves entail severe shock, or where previous shock had occurred, deep chloroform anesthesia is to be avoided. He wished that surgeons would curtail as far as possible manipulation of the bowels in abdominal operations, for this undoubtedly adds the dangers of shock to the risk of the anesthetic. Another speaker, on the contrary, advocated always pushing chloroform to its fullest extent, and declared that the fall of blood-pressure from deep chloroformization is much less dangerous than the fall of blood-pressure from shock. To avoid the risk altogether some were in favor of local anesthesia for such operations as exploring the abdomen, or even removal of the thyroid gland.

An attempt has recently been made to stir up professional interest in the quality of our milk supply, and a suggestion of the advisability of issuing certificates as to the soundness, bacteriological and chemical, of milk has been made by Dr. Coutts. This suggestion has met with a chorus of approval, and it is to be hoped that it may have some practical outcome in more general inspection of dairies and milk-purveying. Any one who has made observations on milk as retailed in London must know that it is often quite unfit for adult feeding, and positively dangerous for infant feeding.

The treatment of suppuration in the knee-joint was discussed at the Clinical Society. The difficulty of draining this joint is, of course, well recognized, and various methods have been tried, none of which can boast of any constant success. The anterior lateral incisions which have most often been used are apt to drain only the anterior half of the joint; continuous irrigation has only occasionally been successful; transverse incision dividing the patella is equally unsatisfactory. Mr. Barnard pointed out that the chief difficulty is to drain the posterior part of the knee. No passage could be made from before backward between the tibia and femur, unless the joint was already completely disorganized. The pus posteriorly is in the two pouches extending up under the heads of the gastrocnemius on each side; these pouches are separated from each other by the crucial and other ligaments. In severe cases he had opened these pouches by two posterior incisions in the line of the leg over the condyles of the femur, being careful to avoid wounding the nerves; the knee was then flexed and tubes inserted on each side. The evacuation of the pus was assisted by massage, downward over the front of the joint and upward posteriorly. Four out of nine cases treated thus gave good results; two had free movement afterward. It was pointed out, however, that such treatment is not necessary in every case, for Mr. Shield had treated five cases of gonorrheal arthritis of the knee-joint successfully by a single incision on the inner side of the patella, washing out the joint with a 1-in-1000 solution of mercury biniodide, and then closing the wound.

The new Therapeutical Society to which I referred in my last letter has held its second meeting, and some valuable observations on the use of acid sodium phosphate for rendering alkaline urine acid were brought forward by Dr. R. Hutchison. He made a series of clinical experiments with the ordinary mineral acids, hydrochloric, sulphuric, and phosphoric; and then with the organic acids, tartaric, acetic, citric, and lactic. These he found had very little effect in acidifying the urine; they were neutralized and excreted chiefly as ammonium salts. Benzoic acid was then tried and found to have no influence on the reaction of the urine. Finally, acid sodium phosphate was given and found to have a very marked effect in rendering the urine acid. This might almost have been expected when it is remembered that the normal acidity of the urine is chiefly due to this particular acid salt.

Acid sodium phosphate is particularly useful in keeping the urine acid after operations upon the bladder, and is recommended also for use in conjunction with urotropine. It is easily soluble in water, and so is convenient for administration. It may be given in doses of 30 to 60 grains every three hours, but is better given in smaller quantities more frequently so as to secure continuous elimination. A convenient plan is to dissolve two

drachms in a pint of water and allow the patient to drink small quantities of this from time to time. The only unpleasant effect which was produced by this drug was diarrhea, which was however easily checked by ordinary remedies.

PARIS LETTER.

By R. H. Turner, M.D. (Paris).

The new dean of the Paris Faculty, Professor Debove, does not seem to be very popular with the medical students. Last January, at the first lecture of Professor Poirier, the well known anatomist, he did not come in for the same ovation as Dr. Poirier, and since then there has been some trouble and commotion about the Faculty, with processions, called in French "monõmes." At these times, on following the banks of the Seine, it could be seen that policemen had been stationed at each bridge as far as the Pont Alexandre III. to prevent the passage of any gathering of students. Since his elevation to the deanship, Professor Debove has been busy seeking to carry out certain reforms, and his zeal has awakened a feeling of opposition, which is showing itself in this manner. It is to be questioned whether having recourse to the police force of the city will not embitter the students against him. Of late, however, they have been much more calm.

The new law on public health renders vaccination obligatory in France. The Academy of Medicine has named a committee, which recently presented a report on this subject, in which it was stated that vaccination should always be performed with animal virus. In exceptional cases human virus might be used. Professor Landouzy protested against this latter clause, which might render the Academy of Medicine civilly responsible for any damage done. This part of the report was therefore suppressed, and it was decided that the virus should be furnished by official institutes recognized by the State. The service of vaccination of the academy is to be transferred into a superior institute for supervising the various institutes. In each commune one or several series of vaccinations will be carried out yearly. In each contaminated house vaccination will be performed immediately, and the inmates will be obliged to submit to the operation.

At a recent meeting of the Academy of Medicine, its members voted their approval of the manifests posted up in the streets of Paris, in which the dangers of alcoholism were described, and which was drawn up by the dean of the Faculty, Professor Debove, and Dr. Faisans. Dr. Lancereaux remarked that the amount of liquors, such as absinthe, which were drunk in France, had doubled during the last twenty-five years, going from 10,755 hectolitres to 27,123 hectolitres in a year. Tuberculosis is often seen in persons who drink these liquors. Neuritis is also often seen in such persons. All essences produce disastrous results if used in too large quantities, and no difference should be established, as they are all dangerous. They should only be sold by druggists, or else heavily taxed.

The subject of a thesis passed recently in Lyons is of considerable interest—the serodiagnosis of tuberculosis in children. In the first part of this work the author Descos shows how difficult the diagnosis is in many cases, and how insufficient, if not dangerous, are the means of diagnosis usually employed, such as bacilloscopy, radioscopy, injections of tuberculin, of iodide of potassium, and of serum. He then gives a description of Arloing and Courmont's method of diluted cultures, which is certainly a great advance. Then follows a study of sero-reaction in the new-born child and the normal child. There is no reaction up to the age of ten, and above that age there is usually a slight reaction. The second part of the work deals with the results found in examining children suffering from tuberculosis. In chronic forms of pulmonary tuberculosis, peritonitis, pleurisy, pericarditis, adenitis, in suspicious cases of anemia, the reaction is quite clear. In severe forms, however, it is weak or even absent. In acute tuberculosis, such as bronchial pneumonia, tuberculous meningitis, it is very weak, but as these diseases generally occur in children who are very young, even a slight reaction is sufficient. In surgical forms of tuberculosis the reaction is fairly strong, with the exception of tuberculosis which is limited to the bones.